F. 99. *From* Admiralty. October 8th.
To C.-in-C., East Indies.

216. . . . It is possible that the *Emden* may attempt to come up the Persian Gulf to co-operate with any movement of the Turks in that region. . . .

F. 100. *From* Governor of Ceylon. October 8th.
To Colonial Office. Received 8.50 a.m.

1457. . . . On October 7 Legislative Council unanimously approved charge for the contingent. I have provisionally arranged passage of contingent by Bibby vessel on October 20, but Admiral telegraphs he cannot either promise to provide escort or guarantee safety without escort. Consequent deadlock. Can you press Admiralty to arrange for escort? Trade confidence in the Navy will be further shaken if the contingent cannot sail.

F. 101. *From* C.-in-C., China. October 9th.
To Admiralty. Received 10.30 a.m.

193. Three French transports with 2,000 troops have arrived Singapore, but no escort is available except *Zhemchug* (Russian) which is not strong enough and has not sufficient coal capacity.

Yarmouth is nearest available ship, and . . . I propose to withdraw her temporarily from search for *Emden*, leaving *Hampshire*, *Chikuma* (Jap.) and *Empress of Asia* to continue it.

Yarmouth could then escort transports to Bombay in time to join convoy sailing there November 1. . . .

F. 102. *From* C.-in-C., East Indies. October 10th.
To Admiralty. Received 8.19 a.m.

217. Departure of convoy postponed until October 16th, as under existing circumstances it is considered advisable to await arrival of *Goliath* arriving at Bombay October 16. *Ocean* requires three days at Aden for repair of fan &c. and will meet convoy at sea.

F. 103. *From* C.-in-C., East Indies. October 11th.
To Admiralty. Received 8.7 a.m.

218. *Ocean* delayed at Aden with machinery defects until October 14.

F. 104. *From* Admiralty. October 12.
To C.-in-C., East Indies.

224. Whilst *Fox* is employed with Expedition "B" *Dupleix* is to be employed under your directions on escort duty with main convoys to and from India. Give her necessary directions. C.-in-C., China, informed.

F. 105. *From* Admiralty. October 15th.
To C.-in-C., East Indies.

226. For the better control of your command, you are given the option of remaining on shore at Bombay. Report what you decide.

F. 106. *From* C.-in-C., East Indies. October 16th.
To Admiralty. Received 10.52 a.m.

225. C.-in-C., East Indies, *Swiftsure*, *Goliath*, *Dufferin*, 47 transports and station collier *Reichenfels* left (leaving) Bombay 5 p.m. October 16. *Reichenfels* will be placed under control of *Chatham*. My telegraphic address remains Bombay until further notice.

F. 107. *From* C.-in-C., East Indies. October 16th.
To Admiralty, Received 10.45 p.m.

226. Your telegram 226. I am proceeding with large convoy October 16 movements being somewhat complicated and arrangements having been already made.

F. 108. *From* Admiralty. October 23rd.
To C.-in-C., China.

244. Your 218[1] approved. Inform *Minotaur* and Navy Board, Melbourne.

Philomel and *Pyramus* can then escort *Monmouthshire* with rifles and details and any French transports ready at the time to Suez.

Your 215. *Askold* can escort French transports and Ceylon contingent to Bombay. They should leave Colombo as soon as possible after her arrival.

Inform C.-in-C., East Indies and Colombo.

F. 109. *From* Admiralty. October 24th.
To C.-in-C., East Indies. Sent 12.15 p.m.

240. A printed programme of sailings of convoys from England to India and *vice versa* is now on its way to you. It is dated 1.10.14 M/T. Though departures are already behind time they should be adhered to as closely as possible.

A convoy of 9 transports with Wessex Territorial Division left England October 10, and is due at Suez October 26. Escort to Bombay required. Report arrangements.

Another similar convoy for India leaves October 29 with Home Counties Territorials.

Programme of sailings was drawn up for outward and homeward convoys to meet at Suez so that escorts would be available in both directions without delaying troops and sailings were timed at 16 days intervals.

F. 110. *From* C.-in-C., East Indies. October 24th.
To Admiralty. Received 1.40 p.m.

238. *Swiftsure* and *Minerva* arrived Aden October 24 with 38 transports.

Dufferin due at Aden October 25 with one disabled transport. Convoys proceeding to Suez without coaling at Aden escorting ships *Duke of Edinburgh*, *Minerva* and *Northbrook*. *Swiftsure*, *Dufferin* returning to Bombay when finished coaling. *Duke of Edinburgh* leaving convoy October 25 Red Sea and returning to Karachi otherwise departure of next convoy indefinitely postponed.

Ocean remaining in Persian Gulf safeguarding transports.

Goliath and convoys due at Mombasa October 31.

Hardinge and one transport due at Mauritius November 6 and will probably escort transport then (?) to Aden.

Dupleix detained at Suez with defects in machinery until October 27.

F. 111. *From* C.-in-C., East Indies. October 15th
To Admiralty. Received 1.30 a.m.

239. Your telegram 240. Territorial convoy could be escorted from Suez to Bombay by *Dupleix*, leaving Suez October 27. If

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[1] 218 from C.-in-C., China, to Admiralty 23.10.14, sent Noon, received 6.29 a.m.
218. Your 239. *Minotaur* requests permission for *Philomel* and *Pyramus* to leave convoy in vicinity of Cocos Island to proceed to coal at Singapore and rejoin convoy at Colombo. . . .

further escort should be considered necessary they must wait for *Minerva* and *Northbrook* due at Suez October 30, and in that case could not leave Aden before November 10 with *Swiftsure* and *Duke of Edinburgh*.

F. 112. *From* Admiralty. October 25th.
To C.-in-C., East Indies.

241. Your 239. *Dupleix* will suffice in Red Sea unless you see objections. Suggest she be given further instructions at Aden before she proceeds to Bombay.

F. 113. *From* Intelligence Officer, Colombo. October 28th.
To Admiralty. Received, 1.0 a.m.

17. *Askold* left Colombo 11.0 p.m. October 27 with transports *Amiral Olry*, *Polynésien*, *Magellan* and Ceylon Contingent *Worcestershire*.

F 114. *From* Director of Royal Indian Marine. October 28th.
To Admiralty. Received 6.49 a.m.

Telegraphic address of C.-in-C., E. Indies, Bombay.

F. 115. *From* Admiralty. November 2nd.
To C.-in-C., East Indies.

259. *Minto* is to proceed up the Red Sea to destroy every Turkish steamer that she can find. When that is done deal with the dhows, sinking Turkish dhows and collecting Arab dhows into suitable harbours where arrangements can be made to detain them.

F. 116. *From* Aden. November 3rd.
To Transports, London, Received 11.49 a.m.

Ns. 164. *Dupleix* and convoy here November 2 at 4 p.m.

F. 117. *From* Admiralty. November 6th.
To C.-in-C., East Indies.

266. *Duke of Edinburgh* is to return to Home waters, accompanying convoy to Malta, where she can be docked if necessary.

Swiftsure should accompany convoy to Suez, returning with convoy of Territorials to India.

Ocean to return to Karachi for convoy leaving middle of November; *Dupleix* escorting convoy from Bombay.

Report if any objection seen; if not, arrange accordingly.

Hampshire will escort convoy from Bombay, sailing about November 28, unless *Emden* is dealt with previously.

F 118. *From* C.-in-C., East Indies. November 6th.
To Admiralty.

258. *Gloucester* has arrived at Aden. What are her orders? I have received no intimation of her joining East Indies Station.

F. 119. *From* Admiralty. November 6th.
To C.-in-C., East Indies.

267. Your 258. *Gloucester* is to proceed to Colombo, passing northward of Laccadive Islands, and then to join in search for *Emden* or as may be ordered. This telegram has been repeated to *Gloucester* at Aden.

F. 120. *From* C.-in-C., East Indies. November 7th.
To Admiralty. Received 9.30 p.m.

263. Your telegram 266. Consider it undesirable that *Ocean* should leave Persian Gulf at present as Captain is conducting

combined operations with G.O.C. at Shatt-al-Arab. Also strongly deprecate withdrawal of *Duke of Edinburgh* from convoy duties without relief.

To carry out programme just received, and to keep ships continually running until end of year, will tax them in all probability beyond endurance.

I have received numerous representations that more time is required for cleaning boilers and necessary repairs. Unless some reliefs are available I fear that breakdown of programme will be inevitable.

F. 121. *From* Admiralty. November 9th.
To C.-in-C., East Indies.

271. Your 263. *Duke of Edinburgh* is required for important duties suited to her fighting powers.

Emden is only enemy cruiser known to be within striking distance of convoys, and is located and being searched for by numerous cruisers.

It appears that one strong ship with armed transport should suffice for moderate sized convoys in Indian Ocean and one cruiser in Red Sea. Suggest *Dupleix* for Red Sea; she is to be relieved by *Desaix* shortly.

Previous orders for *Hampshire* stand for one trip, Bombay to Aden, unless *Ocean* can be spared.

Consider on these lines and report proposals.

F. 122. *From* Admiralty. November 9th.
To C.-in-C., East Indies, and *Fox* Mombasa.

272. Approved for Captain of *Fox* to remain in *Fox*, *Hardinge* to return to escort work unless you wish otherwise.

F. 123. *From* C.-in-C., East Indies. November 9th.
To Admiralty. Received 1.52 p.m.

265. *Hardinge* should be ordered to Colombo, being required to convoy between Calcutta and Rangoon.

Addressed to *Fox* and repeated to Admiralty.

F. 124. *From* Director of Royal Indian Marine. November 9th.
To Admiralty. Received 4.36 p.m.

Dupleix and convoy arrived Bombay 9th November.

F. 125. *From* C.-in-C., East Indies. November 9th.
To Admiralty. Received 9.58 p.m.

267. Following telegram sent to *Duke of Edinburgh* (begins) :—

Admiralty telegraph *Duke of Edinburgh* to return home accompanying convoy to Malta, when she can be docked if necessary.

Swiftsure to continue to Suez with *Duke of Edinburgh* and convoy is to bring back convoy of Territorial Forces to Bombay.

Dufferin is to proceed from Aden to Karachi to escort convoy leaving Karachi November 20.

Northbrook should accompany *Duke of Edinburgh* to Suez and should return Aden with *Swiftsure* (ends).

F. 126. *From* C.-in-C., East Indies. November 10th.
To Admiralty. Received 9.24 a.m.

269. Impossible to adhere to programme of transport sailings just received, dated November; 1 sixteen-day sailings were only possible so long as escort could maintain at least 12½ knots on return voyage Aden to Bombay, whereas speed of transports which

arrived to-day was only 10. Every effort is being made to expedite, but delay at Suez from this cause inevitable unless more ships can be spared for duty of escorting.

F. 127 *From* Admiralty. November 10th.
To C.-in-C., East Indies.

275. Consequent on destruction of *Emden*, *Weymouth* and *Gloucester* are to proceed to Malta.

Melbourne and *Sydney* are to leave the convoy and push on to Colombo and then proceed to Malta,

F. 128. *From* Admiralty. November 11th.
To Swiftsure, Aden, and
C.-in-C., East Indies.

277. *Swiftsure* is to leave convoy and proceed with despatch to Suez. Convoy is not to be delayed if no Indian Marine ship is available—order troopships to proceed independently and as fast as possible.

F. 129. *From* Admiralty. November 11th.
To C.-in-C., East Indies.

278. Your 269. Convoys are not necessary except in Red Sea, and Homeward bound should collect and Outward bound convoys disperse at Aden.

Let *Dupleix* take her convoy as arranged.

Swiftsure must remain in Egypt for the present. Send her reserve ammunition to Suez at once. Outward bound territorial convoy will be escorted to Aden by *Minerva* or *Proserpine* if no Indian Marine ship is available, the escort then returning to Suez.

Make arrangements for Red Sea convoys using Empress Liners and Indian Marine ships as escorts.

F. 130. *From* Admiralty. November 12th.
To S.N.O., Mombasa. Sent 2.30 a.m.

Captain Caulfeild will exchange into *Chatham*, taking temporary command of *Chatham* and proceeding at once (immediately) to Gibraltar. *Weymouth* will also proceed to Gibraltar, both ships with all despatch. Report when they have sailed. . . .

F. 131. *From* C.-in-C., East Indies. November 12th.
To Admiralty. Received 7.42 a.m.

278. Your telegram 278. Outward bound Territorial convoy due at Suez 11th November must await *Northbrook* due there 16th November unless *Minerva* or *Proserpine* can bring them on.

F. 132. *From* Admiralty. November 12th.
To C.-in-C., East Indies, and Sent 6.40 p.m.
S.N.O., Mombasa.

281. *Weymouth* orders to proceed Gibraltar cancelled; she is to proceed at once to Simon's Bay. Acknowledge and report when she has sailed.

F. 133. *From* Admiralty. November 12th.
To C.-in-C., East Indies. Sent 9.20 p.m.

282. *Ocean* is to remain on station and hoist your flag when no longer required in Persian Gulf.

Pyramus is to remain on East Indies Station. *Philomel* is to proceed to Egypt. *Hampshire* and *Yarmouth* to proceed to Gibraltar.

F. 134. *From* Port Officer, Aden. November 13th.
To Admiralty. Received 8.45 a.m.

206. Governor, Port Sudan, refuses to accept telegram for Navy. Tel. has been repeated Port Said radio for transmission to *Swiftsure* by W/T.

Eastern Telegraph Co.'s Station at Port Said has been instructed to hand copy to British man-of-war on arrival for transmission to *Swiftsure* by W/T.

Message sent to Aden Radio for transmission to all H.M. Ships in wireless communication during next week.

F. 135. *From* Admiralty. November 13th.
To S.N.O., Egypt, (No. 10). Sent 5.25 p.m.
C.-in-C., East Indies, (No. 283).

Minerva is to convoy outward bound Territorial convoy to Aden from Suez.

F. 136. *From* Admiralty. November 16th.
To C.-in-C., East Indies. Sent 12.55 p.m.

290. You are not authorised to direct any operations in the Red Sea. Those operations will be directed by S.N.O., Egypt.

F. 137. *From* Admiralty. November 17th.
To C.-in-C., East Indies.

294. In view of possible outbreak of war between Germany and Portugal, German ships at Goa will probably be ordered to sea at once. Capture them if you have any vessel available.

F. 138. *From* C.-in-C., East Indies. November 18th.
To Admiralty. Received 7.40 a.m.

293. 1st Lord of the Admiralty. Your 293.[1] *Gloucester* sailed November 16. Proceeding to (cancel leave—*sic*—Canal leaving?) 21st November due at Suez November 29. Anticipate no difficulty with regard to other duties. Have directed Captain of *Ocean* as S.N.O. Persian Gulf to correspond direct with Admiralty, Govt. of India and Director of Royal Indian Marine during my temporary absence from Indian waters continuing myself in general control, but as operations in Persian Gulf are chiefly military consider that details may safely be left to Senior Officer on the spot. I may be out of touch for a short time while on passage but best endeavours will be made to maintain communication. Convoy through Red Sea can readily be controlled as heretofore.

F. 139. *From* C.-in-C., East Indies. November 18th.
To Admiralty. Received 6.32 a.m.

292. Your telegram 294. I have ordered *Hardinge*, due at Colombo November 19, to proceed to sea.

F. 140. *From* Aden. November 22nd.
To Admiralty. Received 12.4 p.m.

Northbrook arrived.

F. 141. *From* Intelligence Officer, Colombo. November 26th.
To Admiralty. Received 8.51 a.m.

16. French transport *Chile* left bound for Djibouti November 25.

Philomel and French Transports *Euphrate*, *Latouche Tréville*, left bound for Aden November 26.

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[1] *See* p. 40.

F. 142. *From* C.-in-C., East Indies. November 26th.
To Admiralty. Received 10.10 p.m.

308. Eight transports conveying Territorial Regiments leave Aden for Bombay November 26.

F. 143. *From* Admiralty. November 28th.
To Director of Indian Marine.

2. *Hardinge* should remain at Goa, being responsible that no German or Austrian ships escape in any circumstances though the declaration of war may probably not take place immediately.

The prizes will be Portuguese.

APPENDIX G.

GENERAL WAR ORDERS—EAST INDIES STATION.[1]

(Revised February 21, 1914.)

The following orders are promulgated for the information and guidance of the Officers Commanding H.M. Ships on the East Indies Station, and all others concerned, and are to be complied with by all officers in so far as their several duties are affected.

2. Instructions relating to particular ships and departments, and not of a general nature, are separately issued.

I.—Object.

The East Indies Squadron being situated on the line of communication to the Far East, its object is to keep this line open by preventing the enemy from interfering with it.

2. The secondary object is to destroy the enemy's trade, and these objects must be the same whatever the country with which we may be engaged in war.

II.—Objective.

The only way in which the enemy can interrupt the British line of communication is to attack it at some vulnerable point with a naval force. The objective of the squadron is therefore *any naval force that the enemy may have in these waters.*

2. This force may consist of regular men-of-war or of auxiliary cruisers, *i.e.*, merchant steamers converted into men-of-war, or a combination of both. Since the principal continental naval powers have declared that they intend to convert merchantmen into men-of-war anywhere upon the high seas, if they consider it to their interest to do so, all merchant steamers belonging to the enemy must be looked upon as possible cruisers, and they must be captured or destroyed at the earliest possible moment. This will have the effect of not only preventing the enemy from establishing a naval force on the British line of communication, but since the line of communication is common to both ourselves and the enemy, the secondary object also, that is, the destruction of his trade, will thereby be attained.

[1] Extract M. 0058 of February 21, 1914.

III.—Strategic Conditions.

The Japanese alliance will hold good until July 1921.

2. As long as the treaty holds good, so long will our command of the sea in the Far East be assured to us, and no attack on our communications in Indian waters by the regular war vessels of any possible enemy need be apprehended. It is presumed that the British squadron in China, assisted by our allies, will be ample to prevent the enemy's force in those waters from moving, and that if they should move, the Commander-in-Chief, China, will detach a sufficient force to deal with them wherever they may go.

3. The situation will be quite different, however, when the treaty ceases to be operative, but as this will not take place for at least another seven years from the present date, it is not proposed to make any arrangements now for that eventuality, as anything may happen between this and then which might materially alter the conditions.

4. With regard to the situation created by the possible conversion of merchant steamers into men-of-war, the British position is not so favourable. These vessels are intended to prey on unarmed merchant vessels, and therefore it is not necessary for them to carry guns of any size. A 1-pr. maxim is quite sufficient to enable one of these craft to bring to any unarmed vessel that she is able to come up with.

5. The following are the conditions that have to be fulfilled to enable a merchant ship to transform herself into a man-of-war :—

(*a*) She must be under the direct authority, control, and responsibility of the Power whose flag she flies.
(*b*) She must fly the ensign usually worn by men-of-war.
(*c*) The commander must be in the service of the State, and duly commissioned by the competent authorities. His name must appear in the Navy List.
(*d*) The crew must be subject to military discipline.

6. These conditions are complied with in the majority of ships belonging to Russia, France, Germany and Austria ; probably also in Japanese ships. Most of the Officers and men have done their compulsory service in their respective navies, and belong to one or other category of the Reserve.

7. Since all foreign merchant vessels must thus be regarded as potential cruisers, it is as important to know their movements as those of the regular men-of-war. A system has therefore been arranged for keeping track as far as possible of every foreign merchant vessel in or near the East Indies Station. As there are few neutral ports where they can take refuge when once they have passed Perim, going to the eastward or the north end of the Straits of Malacca, going to the westward, they will probably soon be dealt with. The greatest danger will lie in merchant vessels that slip away from the southern parts of the China Station, where it is difficult to watch them, and come into Indian waters by either the Malacca and Sunda Straits or round the east end of Java by the Bali, Lombok or Allas Straits, and convert themselves into men-of-war to prey upon our trade routes. Such action is to be apprehended more particularly in a war with Germany, because she has acquired the control of a large number of the local steamers which trade in South China waters and of which the movements would be especially difficult to watch.

8. Of these three routes from the China Station to the East Indies, that by the Straits of Sunda is the most dangerous at it lies entirely within the territorial waters of the Netherlands. Many places exist in the Straits of Sunda in which a merchant vessel could remain hidden, and issue forth upon the high seas as a cruiser on the first favourable opportunity. The Straits of Malacca are commanded by Singapore, and the Straits to the eastward of Java are 1,600 miles from any point of the trade route to the

Far East through the Indian Ocean, but they are close to the trade routes which pass round the northern end of Australia. It is thus probable that vessels using the latter channels will strike at the Australian trade which is nearer and more open than the Indian and Chinese trade

9. Enemy vessels which come from the Australasian or African coasts, with the object of interfering with the British line of communication through East Indian waters, cannot be located with the same precision as those coming from the Mediterranean or China. It is improbable that they will come north as long as they have the British Australasian or South African trade to prey upon. If, however, they should try to interrupt our communication with the Far East, the points at which they will probably strike are those where the trade routes are restricted and where in consequence the vessels are closer together and more easily found than on the open sea. Such points are:—

(*a*) The Gulf of Aden.
(*b*) The neighbourhood of Minicoy.
(*c*) The south end of Ceylon and off Colombo.
(*d*) The Straits of Malacca.
(*e*) The Straits of Sunda.

10. From the foregoing it appears that the communication to the Far East through the East Indies Station can be practically controlled by vessels stationed in the following localities:—

Gulf of Aden: To watch the Straits of Bab-el-Mandeb for vessels coming from the Mediterranean, and to control the traffic through the Suez Canal; also to deal with any vessels coming north along the African coast.

Ceylon: To deal with any vessels attempting to strike the trade routes at Minicoy or around Ceylon.

The Straits of Malacca and Straits of Sunda: To deal with vessels coming from the China Station, also with any vessels coming north from Australia along the coasts of Java and Sumatra.

IV. Enemy's Force.

The average number of enemy warships in or near East Indian waters on any one day is given in the following table:—

Nation	Where stationed.	Cruisers.	Light Cruisers.	Coast Defence Vessel.	Sloops.	Gunboats.	Torpedo Vessels.	Special Vessels.	Mine-layers.	T.B.D.'s.	T.B., 1st Class.	Totals.
Holland	Dutch East Indies	4	—	1	—	2	—	—	3	6	9	25
Germany	East Africa	—	2	—	—	—	—	—	—	—	—	2
	China	2	3	—	—	4	—	—	1	2	—	12
France	China	2	—	—	—	1	1	—	—	—	—	4
	Indo-China	—	—	—	—	1	—	—	—	3	—	4
	Diego Suarez	—	—	—	—	—	—	1	—	—	1	2
Italy	Red Sea	—	—	—	2	—	—	1	—	—	—	3
	Totals	8	5	1	2	8	1	2	4	11	10	52

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V.—Distribution of the Possible Enemy on any one Day (Merchant Steam Vessels only).

Position.	Germany.	Holland.	Japan.	France.	Austria.	Italy.	Russia.	Other Nations.	Totals.
Red Sea	9	3	1	5	1	4	1	5	29
Gulf of Aden	3	—	—	1	1	—	—	1	6
Socotra:—									
Bombay	1	—	—	—	—	—	—	—	1
Ceylon	15	5	1	1	1	1	1	1	26
Zanzibar	3	—	—	—	—	1	—	1	5
Persian Gulf	3	—	—	—	—	—	—	—	3
Karachi	1	—	—	—	1	—	—	—	2
Bombay	5	—	1	—	2	—	—	—	8
Malabar Coast	3	—	—	—	—	—	—	1	4
Colombo	5	—	—	—	1	—	—	1	7
Ceylon:—									
Sabang	—	—	—	—	—	—	—	2	2
Rangoon	1	—	—	—	—	—	—	—	1
Calcutta	1	—	—	—	—	1	—	—	2
Calcutta	5	3	2	1	2	1	—	3	17
Rangoon	1	—	2	—	—	—	—	—	3
Singapore	6	5	4	2	1	—	1	8	27
Elsewhere in E. Area	8	29	8	4	1	—	3	4	57
Totals	70	45	19	14	11	8	6	27	200

VI.—Distribution of British Merchant Steam Vessels on any one Day.

Red Sea	47
Gulf of Aden	22
Socotra:—	
Bombay	5
Ceylon	25
Zanzibar	4
Persian Gulf	13
Karachi	10
Bombay	33
Malabar Coast	5
Colombo	16
Ceylon:—	
Fremantle	2
Sabang	6
Rangoon	3
Calcutta	12
Coromandel Coast	13
Calcutta	40
Rangoon	13
Singapore	21
Elsewhere in Eastern Area	25
Total	315

Note.—The figures given in Articles V. and VI. are approximate only, and vary from day to day, but they may be taken to represent the average number of steamers that may be expected to be found in the several divisions.

Locality.	Ships.
Gulf of Aden	Two sloops.
Persian Gulf	One sloop. To reinforce the Aden Division if not required in the Persian Gulf.
Ceylon	*Fox* and *Pelorus*. For the protection of the Australian trade between Colombo and Fremantle, either H.M.A.S. *Sydney* or H.M.A.S. *Melbourne* will be despatched immediately to Fremantle and will be placed under the orders of the Commander-in-Chief, East Indies, there to await telegraphic orders from him.
Straits of Malacca and Sunda	*Swiftsure*, *Dartmouth*, and the two auxiliary cruisers. To be reinforced in certain circumstances by *Triumph* after being commissioned at Hong Kong.

2. Any variation in the strategic conditions, such as the appearance of an organised force of the enemy on the station, will call for a modification of this distribution, and a probable concentration of a force sufficient to deal with that of the enemy at such a point as may be indicated by the information received.

VIII.—Headquarters of the Commander-in-Chief.

The Commander-in-Chief will make Singapore his headquarters.

The remaining sections were under the following headings :—

IX.—Action to be taken on receipt of warning Telegram.
X.—Action to be taken on outbreak of Hostilities.
XI.—War Stations after the Divisions have been cleared of known Enemy Vessels.
XII.—Fleet Auxiliaries.
XIII.—Supplies.
XIV.—Submarine Cables.
XV.—Urgent Telegrams to the Admiralty.
XVI.—Stationary Officers and their Duties.
XVII.—Harbour Traffic Regulations.
XVIII.—Neutrality of Friendly Powers to be respected.
XIX.—Co-operation with Military Authorities.
XX.—Return of Safe Custody of War Orders.
XXI.—Secrecy of War Orders

HISTORICAL MONOGRAPHS ISSUED.

1. Operations leading up to the Battle of Coronel.
2. The German Cruiser Squadron in the Pacific.
3. Operations leading to the Battle of the Falklands.
4. Escape of *Goeben* and *Breslau*.
5. Cameroons, 1914.
6. Passage of British Expeditionary Force.
7. Patrol Flotillas to November, 1914.
8. The Scarborough Raid, December, 1914.
9. The White Sea Station.
10. East Africa to July, 1915.
11. The Action of Heligoland Bight.
12. The Action of the Dogger Bank.
13. Summary of Grand Fleet Operations, 1914–1916.
14. The First Australasian Convoy.
15. Mesopotamia to the Fall of Kut. (*In preparation.*)
16. The China Squadron and *Emden* Hunt. (*In preparation.*)

Training and Staff Duties Division,
May, 1921.

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Copy No. 3.

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THE DOVER COMMAND

VOL. I.

(Short Title :—" DOVER. Vol. I.")

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NAVAL STAFF,
TRAINING AND STAFF DUTIES DIVISION,
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DOVER. VOL. I.

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DOVER. VOL. I.

FOREWORD.

1. The work of the Dover Patrol during the four and a half years of war comprised a variety of duties, in the course of which the considerable numbers of vessels of which it was composed carried out numerous operations. Amongst the subjects to be treated in writing the history of the Dover Patrol are: The bombardments, the various landings and raids on the Belgian coast which were proposed, prepared, or carried out, the Belgian Barrage and Patrol, Minelaying off the Belgian coast, Cross-Channel Transport Service, Downs Examination Service, Minefields Patrols, Dover Straits Barrage, Commerce Protection, and the German Destroyer Raids in the Channel. Many of these subjects are highly technical and have already been dealt with from that point of view in various confidential publications issued by the Admiralty.

The history of the Dover Patrol will be treated in several sections, of which the present volume comprises four, viz., the Bombardments, the Raids, the Landings, and the Barrage, subjects which for the most part have not yet been treated in other Admiralty publications. The preparation of further sections will be undertaken in due course.

2. Sources.—The main sources of information for the compilation of this volume are comprised under—

(*a*) Admiralty Papers.
(*b*) Records of Dover Base.

No archival work has yet been done on these papers, with the exception of a few of the earlier ones under heading (*a*). Other sources of information are the telegrams, and the logs of the vessels comprising the Patrol. The telegrams, most illuminating where operations in foreign waters are concerned, are in the present instance difficult of consultation and mainly an unfruitful source of information. The logs of the vessels have been consulted in special cases and when other sources of information are silent.

For the most part, reliance has been placed on the Records of Dover Base, at present in the custody of the Historical Section, Committee of Imperial Defence, awaiting arrangement. They are referred to in this Monograph as "Dover Papers." They comprise 57 "Packs," some of which include a number of sub-packs. For example, No. 46, "Operations," which contains the most important papers used in compiling this monograph comprises 34 sub-packs, some of which are again sub-divided. But there are many gaps in these records, nor can these gaps always be filled from other sources. Where records fail completely, Admiral Bacon's "The Dover Patrol, 1915–1917," has been found useful.

INTRODUCTION.

1. The Dover Command holds a unique position in the history of the war, arising partly from its strategical position and partly from its proximity to the naval bases of the enemy.

Strategically, it was the southern gateway of the North Sea, and presented a possible exit to enemy forces for excursions against the Channel transport system of our overseas commerce. This had been recognised in drawing up the War Plans of 1914, but its precise strategical status had not been fully grasped: nor could it have been, for its later aspects depended on factors such as the German occupation of the Belgian coast and the adoption of unrestricted submarine warfare, which were beyond the realm of definite prevision.

The arrangements for securing the Channel and the Straits of Dover, as set forth in the War Plans of 1914, began almost immediately on the outbreak of war to undergo modification and adjustment.

In the north was the Grand Fleet, forming a single corporate command, whose business it was to establish maritime domination of the North Sea.[1] But in the south there were, at least, four distinct groups of naval forces. At Harwich the 1st and 3rd Destroyer Flotillas under Commodore (T), and the 8th Submarine Flotilla under Commodore (S); at the Nore, Cruiser Force "C"; at Dover the 6th Destroyer Flotilla and 3rd and 4th Submarine Flotillas under the Admiral of Patrols; and in the Channel the 2nd and 3rd Fleets comprising the Channel Fleet.

2. Commodore (T) received his War Orders from the C.-in-C., Grand Fleet,[2] but could not be regarded as an integral part of his command. He might be required to join the Grand Fleet, or alternatively the Channel Fleet if the latter moved to the North Sea, and he was also to work in close conjunction with Rear-Admiral, Cruiser Force "C," acting under the orders of the latter during "combined operations."[3] It was his function "to keep the eastern approaches of the English Channel clear of enemy torpedo craft and minelayers, and to reconnoitre and give early information as to the movements of enemy vessels."

[1] War Orders July, 1914, Part I, General Instructions, par. 3. For the text of these Orders, *see* C.B.1537, *Naval Movements*, August, 1914, Monograph No. 6, Naval Staff, September, 1919.

[2] The text of the War Orders for Commodore (T), Cruiser Force "C" and Admiral of Patrols will be found in Monograph No. 6, C.B.1537, Appendix C.

[3] Here used in the sense of cruiser squadrons working in combination.

Cruiser Force " C," operating from the Nore, received its War Orders from the C.-in-C., Grand Fleet, and was stationed there " in order to ensure the presence of armoured vessels in the southern approaches to the North Sea and the eastern entrance to the English Channel, and to support the 1st and 3rd Flotillas operating in that area from Harwich." In the case of " combined operations "[1] Commodore (T) was to work under him.

3. The Dover Flotilla was, at the outbreak of war, a portion of the Patrol Forces under the Admiral of Patrols, who received his orders from the Admiralty. His position involved a somewhat complex relationship. Vessels in the Southern Theatre (*i.e.*, the Channel Fleet and vessels west of and including the Straits of Dover) were under direct Admiralty control as far as their strategical disposition was concerned, but *except the patrol flotillas*, were to act under the Vice-Admiral, Channel Fleet, when he was in their vicinity, a provision which clearly excluded the Patrol system from the Channel command. But on the issue of the warning telegram the Admiral of Patrols with his vessels in the North Sea, *except only those employed in the Dover Patrol*, came under the command[2] of the C.-in-C., Grand Fleet, who was to issue all orders necessary to make their disposition conform to his main operations, but was not to divert any portion from their duty as coast patrols, except in the gravest emergency, without their Lordships' sanction. These orders placed the Patrol forces at the disposition of the C.-in-C., Grand Fleet, with the single exception of the Dover Patrol, which remained under the direct control of the Admiralty and the Admiral of Patrols.

The latter, so far as Dover was concerned, was charged with the special duty of denying the Straits to the enemy, attacking his armed vessels within the limits of the patrol and immediately reporting if any succeeded in getting through the Straits, and further, of detaining all enemy merchant shipping in the Downs and directing all eastward-bound traffic through the Downs. He had also to patrol the East Coast, with the object of preventing the near approach of hostile vessels without being attacked and reported, and to keep the East Coast ports free from enemy mines.[3]

It will be seen that his duties were largely concerned with Dover though paragraph 11 of his Orders directed that he was " to endeavour to exercise a general supervision, and that he should move from station to station," a task which finally became incompatible with the work of Dover Patrol.

4. Further west there was the Channel Fleet. It consisted, on August 8, 1914, of 20 older battleships and formed part of

[1] Here used in the sense of cruiser squadrons working in combination.
[2] " Will be placed under the command of the C.-in-C., Grand Fleet," War Orders, Part III, par. 4, *Naval Movements*, 57.
[3] War Orders, Admiral of Patrols, par. 2, C.B.1549, *Patrol Flotillas, 1914*, Monograph No. 7, December, 1919, Appendix B.1, pars. 2, 7. *See* also War Orders for C.-in-C., H.F., par. 7, in *Naval Movements*, Appendix C. 2.

the fundamental strategical disposition intended to ensure the destruction of the enemy naval forces and obtain command of the North Sea and Channel " by two fleets stationed so as to be in a position to bring the enemy's fleet to action should it proceed to sea."[1]

In the event of a hostile fleet standing to the southward, the Vice-Admiral might expect to receive orders to proceed to sea " either to reinforce the Grand Fleet, or to observe, check, weaken, or delay the enemy according to circumstances so as to assist the Northern Fleet to cut him off from home and bring him to action under the most favourable circumstances."

Finally, there was the Commodore (S), who was in command of the 8th Flotilla of 3 " D " and 7 " E " submarines, based on Harwich, and who was allotted the task of offensive operations on the German coasts and reinforcing Cruiser Force " C." He received his War Orders from the C.-in-C., Home Fleet.[2]

5. It will be seen that the actual conditions of command in the south were far from simple, and it is important to grasp that one of the dominant features in southern waters was the lack of any single corporate command. This may have been inevitable, but in any case the forces in the south did not constitute a single command. Commodore (T) came under the command of the Vice-Admiral, Channel Fleet, if the latter came into the North Sea, but the possibility of this contingency did not permit Vice-Admiral, Channel Fleet, issuing regular instructions to him, or regarding him as a permanent component portion of his fleet.

6. These conditions of command began to adjust themselves almost at once in the direction at first of a tendency to detach the southern forces from the Grand Fleet and to constitute a single command in the Narrows.

On August 9 the C.-in-C., Grand Fleet, asked that Commodore (T) and Commodore (S) might work directly under Admiralty orders.[3] On August 14 Cruiser Force " C " was detached from the Channel Fleet, and on August 15 was put temporarily, with Commodores (T) and (S), under the command of Rear-Admiral Christian, who was at this time appointed to command the forces in the Southern North Sea.[4]

This arrangement remained nominally in force right up to the morning of September 22, when Cruiser Force " C " was broken up by the loss of the *Hogue*, *Cressy* and *Aboukir*. There can be little doubt that the work of the two Commodores operating

[1] War Orders M.0053, July, 1914, Vice-Admiral Commanding 2nd and 3rd Fleets, par. 2, *Naval Movements*, Appendix C. 3.
[2] Orders for 8th Submarine Flotilla, H.F.003/D., August 3, 1914. *Naval Movements*, Appendix C. 7.
[3] Tel. 9.8.14.
[4] This was presumably for the Sweep of August 16, but the order was not rescinded. *See Naval Movements*, Appendix A. 135.

in the Narrows was of a nature which could not be comprised in a Cruiser Squadron command, and they subsequently received their instructions from the Admiralty.

In August Cruiser Force "K," consisting of the *Invincible* and *New Zealand*, was constituted under Rear-Admiral A. G. H. Moore, based on the Humber to act under the general orders of the Admiralty "as a powerful advanced cruiser force for the support of the combined force under Rear-Admiral Christian,"[1] but it remained there only a short time, and was soon sent to the Grand Fleet.

7. The Dover Patrol remained for a time under Admiral of Patrols. Its work fell at first under two categories—to attack and report all enemy ships in the Straits and to control merchant traffic. The latter rapidly developed into the Blockade Examination Service in the Downs, which became an important adjunct of the blockade, but may be regarded as merely an administrative attachment of the Dover Command, for its actual work was controlled by the Chief of Staff acting on the advice of the Trade and Intelligence Divisions of the War Staff.

At the beginning of the war, the organisation of the Patrol Flotillas was based on the prevention of raids; but after the laying of the Humber and Tyne minefields by the *Albatross* and *Mainz* on August 25–26, Rear-Admiral Ballard, Admiral of Patrols, issued orders[2] on August 31 which made the prevention of minelaying the principal task of the Patrol Flotillas. This required a re-organisation of the East Coast Patrols, and though the Dover Patrol was not immediately affected the change involved a considerable amount of work for the Admiral of Patrols and diverted his attention from Dover.

8. The sinking of the *Pathfinder* on September 5 and the loss of the *Cressy*, *Hogue* and *Aboukir* on September 22 emphasised the importance of Patrol Flotillas for anti-submarine work. This was particularly the case in Dover's narrow waters, and after an unsuccessful submarine attack on the *Attentive* on September 27, arrangements were made for the four Tribals to be fitted with the modified sweep, and to patrol from East Goodwin to Ruytingen Buoy.

The position at Dover became acute at the beginning of October. The laying of the British minefield had involved a considerable amount of work for Admiral Ballard and his staff and he had intended to leave Dover for a visit to the East Coast on October 5. Just then the whole question of the transport of the Naval Division to Antwerp *via* Dunkirk, and of the Seventh

[1] M.0072, 21.8.14, *Naval Movements*, Appendix C. 16.

[2] Orders Admiral Patrols to 7th and 9th Flotillas, August 31, C.B.1549, *Patrol Flotillas, 1914*, par. 20.

Division to Dunkirk and Boulogne[1] suddenly arose and increased the volume and complexity of his work. Refugees from Antwerp were pouring into Dover harbour and the South Coast ports, and it was becoming more and more evident that the Belgian coast would loom larger and larger in the work of the command, and would call for a flag officer untrammelled by other responsibilities. On October 7 it was proposed to make Dover Patrol a separate command; on October 10 Admiral Ballard visited the Admiralty to arrange the transfer, and on the 13th Rear-Admiral Hood assumed the Dover command. This may be said to end the first and opening phase of the Patrol.

[1] Subsequently altered to Calais or Boulogne and then again to Zeebrugge and Ostend. *See* Corbett, *Naval Operations I*, 190.

PART I.

BOMBARDMENTS, 1914–1918.

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NOTE ON SOURCES.

1. This account of the bombardment of the Belgian coast has been compiled mainly from the Records of the Dover Base. The following are the papers in Pack 46 (Operations) which bear on the subject :—

1. "State" of the Dover Patrol Force, 1918.
2. Naval and Military Operations, September–October, 1916.
13. Dover Daily Summaries, 23.8.18–14.11.18.
14. Dover Weekly Summaries, March–November, 1918.
17. Despatches.
19. Dover Patrol Memoranda (Escort and Confidential).
24. Barrage Patrol, August, 1917, to December, 1917. (Reports and Orders.)
30. Operations—Miscellaneous, 1915–1916.
31. Operations, 1915–1916.
32. Bombardments of Ostend, April–August, 1917.
33. Operations against Zeebrugge, August, 1915.
34. Operations, 1917.
35. Operations against Belgian Coast, April–July, 1918.

2. The following papers in the Record Office contain Reports, etc., on the bombardments, 1918 :—X.12371, 13870, 14010, 14416, 14418, 14419/18.

3. C.B.1524, "Report of Committee appointed to examine the German defences on the Belgian coast," contains full information on the Coast Defence Batteries.

C.B.1515(12), "Technical History and Index" (T.H.12), has been consulted in writing the section on *Improvements in Technical Methods.*

4. The T.S.D.D. is indebted to Captain Henry P. Douglas, C.M.G., Hydrographic Surveying Officer on the Staff of the Vice-Admiral, Dover, 1917–1918, for revision of the chapters on the bombardments, and for information on many points on which the records are silent.

CHAPTER I.

BOMBARDMENTS, 1914.

1. Bombardment, October 26 to November 7, 1914.—Shortly after Rear-Admiral Hood's appointment the storm cloud lowering over the Belgian coast burst, and the German army came down in a mass on the Yser, threatening the whole Belgian coast and the shores of the Straits of Dover. The left flank of the Belgian army, resting on Nieuport and the sea, was now in a precarious situation, and in response to an urgent call for help, a flotilla was despatched from Dover which operated off the coast of Belgium from October 17 to November 9. Its object was to prevent the movement of large bodies of German troops along the coast roads from Ostend to Nieuport, to support the left flank of the Belgian army, and to prevent any movement by sea of the enemy's troops.[1]

Here the coast from Ostend to Nieuport runs about a mile from the shore, hidden from view by the sand dunes some 20 ft. high which line the coast, with the spires of Westende, Middelkerke, and Mariakerke rising behind and above them. Any bombardment of the coast at medium ranges can be conducted only from the West Deep, a stretch of deep water some seven miles long by some two or three wide running parallel to and some 2½ miles off the shore. North of it lie the shallower waters of the Smal Bank and Nieuport Bank, but in the West Deep the soundings are from seven to nine fathoms. The passage along the coast between Dunkirk Roads and the West Deep is dominated by the Zuidcoote Pass, a narrow channel reported then to have a low-water depth of about 12 ft.[2]

Operations commenced during the night of October 17 when the *Attentive*, flying the Rear-Admiral's flag, with the Monitors *Severn, Humber,* and *Mersey*, the light cruiser *Foresight*,[3] and several torpedo boat destroyers arrived and anchored off Nieuport Pier. A lieutenant of the *Amazon* was despatched to Belgian Headquarters to maintain W/T communications and indicate the target. Early in the morning of October 18 information was received that German infantry was advancing on Westende village, and that a battery was in action at Westende Bains. The former was some 2,000 yd., and the latter some 1,000 yd. from the 20-fathoms line,[4] and the flotilla at once proceeded up

[1] Admiral Hood's Report of Proceedings, 11.11.14, in Dover papers 46/31.

[2] *North Sea Pilot*, Part IV, 1909, 40; chart 1872, Calais to River Schelde. Chart 323, Point de Gravelines to La Panne, 1919, which is the latest survey gives 14 ft. least depth in Zuidcoote Pass.

[3] *Attentive* nine 4 in., draught 13½ ft.; *Foresight* nine 4 in., draught 15 ft. 4 in.; *Severn, Humber, Mersey* two 6 in., two 4 in., draught about 6 ft.

[4] Distances from Y.23, Capt. H. P. Douglas' " Grid " Map, May, 1918.

past Westende Bains and Middelkerke to draw the enemy's fire and endeavour to silence the guns. A brisk shrapnel fire was opened from shore, and though the guns could not be located, the fire of the monitors and *Attentive* seemed to silence them, and our own guns were turned on to various targets and fired till dusk.

From that evening onward, a patrol of destroyers watched the five-mile strip of coast from Middelkerke to Ostend during the night to prevent minelaying and the movements of troops by sea. On October 19 the flotilla opened fire early and continued all day. The Belgians had suffered heavy losses from German batteries near Slype but were still holding Nieuport. October 20 was a critical day and remained so right up to nightfall. Firing again commenced early and continued all day. Messages came flowing in from Army Headquarters in a continuous stream, and to relieve the pressure on the army the destroyers in the afternoon attempted to create a diversion by steaming at high speed close in to Westende; they did not get away scot free, for the enemy, finding the range, put a shell into the water line of the *Amazon*.

October 21 was another critical day; but night fell with the Belgian flag still flying at Nieuport. By this time the cruisers had exhausted their magazines and were forced to return home, their departure bringing the first phase of the operation to an end.[1] All the time it had been in progress the situation of the Belgian army had been precarious, but Nieuport was still in their hands. A large amount of naval ammunition had been expended, and Rear-Admiral Hood was inclined to doubt whether full value had been obtained for it, in spite of the encouraging reports repeatedly received from the army that the fire had been of the utmost service to the troops.

The second phase lasted from October 23 to 31. The ships found it more and more difficult to locate the enemy's troops and guns. Vessels of less naval value appeared on the scene, including the sloops *Vestal, Rinaldo, Wildfire,* the cruisers *Brilliant, Sirius,* and the old " flat iron " gunboats *Bustard* and *Excellent*, assisted by five French T.B.D.s lent by Rear-Admiral Favereau. On October 26 things were again trembling in the balance, but just when the Belgians appeared to be on the point of losing Furnes, a town about three miles inland and four miles in rear of Nieuport, the *Venerable* came on the scene " in the nick of time," and opening fire with her 12-in. guns, saved Nieuport and Furnes from falling into the enemy's hands.[2]

But the Germans were now mounting heavy guns behind the sand dunes, and on October 28 and 29 their fire to seaward was accurate and severe. The *Mersey's* 6-in. gun was disabled; the *Falcon* was hit by a shell from a battery near Westende and her captain and eight men killed; the *Brilliant, Wildfire,* and

[1] Hood, Draft of Despatch, November, 1914, Dover Papers.

[2] Rear-Admiral Hood, 11.11.14, Dover 104/012.

Rinaldo were all hit and suffered severe casualties. The position of the squadron was "somewhat precarious," and it was only by keeping constantly on the move that heavy casualties could be avoided; but to keep constantly on the move is not an easy matter in narrow waters hampered by shoals, and on October 28 the *Venerable* grounded in 3¼ fathoms on the Smal Bank north of the Zuidcoote Pass, and was ashore for 50 minutes.[1] The difficulties of navigation were aggravated by the presence of submarines. Reports of them were constantly being received, and the *Venerable* had been attacked by one in West Deep at 2.30 p.m. on the 28th,[2] half an hour before she grounded. On the other hand, the situation ashore was assuming a more favourable aspect. French reinforcements had arrived. The sluices had been opened and the water was gradually rising and driving the enemy inland.

As it was now apparent that the main object of the operations had been attained, Rear-Admiral Hood was directed on November 7 to return to Dover, and two days later he was instructed to withdraw all ships.

2. The Value of the Bombardment.—It is somewhat difficult to gauge the precise value of a bombardment of this sort, for it had moral and political aspects beyond its material results. It was an impromptu effort. No time had been available for perfecting gunnery co-ordination with the shore, and even had this been possible, there can be little doubt that the whole technique of shore bombardment was in its infancy at the time.

The fire seems to have been directed chiefly by messages from Colonel Bridges, a British General Staff Officer attached to Belgian Headquarters. Seaplanes had also been used to locate the enemy, but foggy weather had rendered reconnaissance difficult. The expenditure of ammunition had been considerable, and on October 27 the Admiralty had telegraphed to Rear-Admiral Hood telling him to impress on Commanding Officers the necessity of deliberate fire. The Rear-Admiral replied that the Belgian authorities had begged him to fire more rapidly, and that deliberate fire, unmarked as it was, would have produced no better results.[3]

The bombardment of October, therefore, consisted of a mere volume of fire; but apart from its material results, there can be little doubt that the sight of the squadron and the thunder of the *Venerable's* salvos had put new heart into the Belgian Army, and in the opinion of Colonel Bridges had "undoubtedly saved the Belgian left flank."[4]

[1] Capt. V. H. G. Bernard to Rear-Admiral Hon. H. Hood, 28.10.14.

[2] That is practically at low water; low water at Dover was at 2h. 9m., at Nieuport 3h. 15m. Low water at Nieuport was some 4 ft. above datum mark.

[3] Admiralty to S.N.O. Dover, 27.10.14, reply 28.10.14.

[4] Bridges to C.G.S., G.H.Q., November 9, 1914, Dover Papers 46/31A.

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The flotilla had done what it was asked to do; but in doing so had lost two officers and 10 men killed, and three officers and 46 wounded.[1] The *Falcon* had suffered most, with nine killed and 14 wounded.

3. Request for Further Bombardment, December 9. The bombardment of October seems to have made a favourable impression at military headquarters, and on December 9[2] Admiral Hood received a signal from Colonel Bridges to say that the Field Marshal considered a bombardment of the Belgian coast next Saturday (*i.e.*, Dec. 12) would have a beneficial effect.[3]

The Rear-Admiral's view on the matter had now become pronounced. He was not in favour of bombardments except in the case of an Allied advance; but the Admiralty had expressed their approval, and on December 12 he crossed in the *Crusader* to confer with the military on the 13th. It had been intended by the Admiralty that the Rear-Admiral should have the *Revenge*, *Majestic*, *Excellent*, and *Bustard*, but at the last moment the orders for the *Majestic* were cancelled,[4] and she was directed to return to Dover.

On December 14 after the Zuidcoote Pass and West Deep had been swept by the *Kuroki* and six other minesweepers, the *Revenge* passed through[5] after dark, and by dawn was in a position for engaging, with the *Excellent* and *Bustard* closer in to the land.

Greater difficulty was experienced on this occasion in keeping the screening T.B.D.s to the eastward of the battleship, as they were subjected to a heavy fire from Middelkerke and Mariakerke, and could maintain their position only by steaming fast and turning about. At noon the enemy opened fire with 21 cm. (8·4 in.) and found the range of the *Revenge* at anchor. While she was weighing, a score of shells fell round her, and one entered aft, wrecking the cabin. Shortly afterwards mist and rain came on, obscuring the coast and precluding the possibility of firing. The Rear-Admiral returned to Dover on the night of December 15, leaving Captain Hughes-Onslow of the *Revenge* in charge of operations. On the morning of the 16th the *Revenge* stood in to

[1] Including Lieut. Wise, killed, and four men wounded ashore belonging to a machine gun party landed on October 18. The above numbers from Dover Papers have not been checked by Admiralty records.

[2] The *Exmouth* and *Russell* under R. A. Wilmot Nicholson, which had returned from the Grand Fleet, had also bombarded Zeebrugge on November 24, leaving Sheerness for the purpose on November 23. It was evidently intended that the Dover Patrol should take part in the operations, for the Rear-Admiral on 20.11.14 stated he would cross to Dunkirk in the *Crusader* that night and that six destroyers and the *Revenge* were to go.—R.A. to Capt. D., 20.11.14.

[3] Col. Bridges to A.O.P., 9.12.14, Dover 46/31A.

[4] Admiralty to S.N.O., 14.12.14, 9.5 p.m.

[5] H. W., Dunkerque, December 14, at 9h. 53m. The Zuidcoote Pass was apparently taken as 10 minutes ahead of Dunkerque. Depth in the Pass was about 27 ft. 11 in. *Revenge's* maximum draught was 29½ ft., but she was probably drawing considerably less.

the shortest possible range to engage the targets with 6-in. as well as 13·5. The enemy opened a heavy and accurate fire with 21 cm. guns, and one shell, hitting and exploding under water, bulged the side and flooded some small compartments, giving the ship a list of 10°. It was now about 2 p.m., the light was bad, the aiming points were scarcely visible, and shortly afterwards mist and haze obscured the coast. Firing was stopped, and that night orders were received from the Admiralty to discontinue the operations and to send the *Revenge* to Dover.

The arrangements for controlling the fire from shore were a considerable advance on those of October. Observation stations were established at Nieuport Church (A), and at the Hotel Regina, Nieuport Bains (B). Communication to the ship was established by a W/T equipment at Furnes (X) and a searchlight station at Nieuport Bains (Y). (A) had a telephone to (X) and (Y), and (B) a telephone to (Y).[1]

4. Another Request, December 17.—No sooner had the *Revenge* left than a message was received on December 17 to say that three French destroyers were bombarding at the request of General Foch, and asking for the support of the monitors. The Rear-Admiral answered that the monitors were too slow and offered three British T.B.D.s instead.[2] He was evidently by now fully convinced of the uselessness of casual bombardments, and his report dated December 17 stated that he wished again to record his " firm opinion that naval bombardment on the coast was only possible if the Allies made a real advance." It was impossible accurately to locate the guns as they were never seen; and he submitted that it was an axiom that ships' guns could not fight shore guns. The risk of submarines was very great, and it was almost impossible for screening destroyers to maintain a position to eastward of the firing ship. These disadvantages would disappear in the event of a big advance when risks could justifiably be taken and shore guns would be partly occupied with the opposing artillery.[3]

5. The Rear-Admiral's Opinion. — Three days later, on December 20, the Rear-Admiral sent another letter on the subject to the Chief of Staff, stating that, after consulting the French Senior Naval Officer and Colonel Bridges, they concurred with him in the general principle that naval co-operation was required only (*a*) if the Allies advanced in force intending to occupy ground as far as Ostend, (*b*) if the enemy advanced in force with the idea of occupying Nieuport.

[1] Commander Altham to R.A., 20.12.14. Furnes sending on 2,600 foot wave and receiving on 2,600 foot; *Revenge* main wireless 2,600 foot; auxiliary 850. The telephone from (A) to (X) failed first day and communication was chiefly maintained by searchlight.

[2] D.N.T.O. to A.D.P. and reply, 17.12.14.

[3] Rear-Admiral Hood to Admiralty, 17.12.14, Dover 284/012.

He was of opinion that a " casual routine kind of bombardment " was absolutely useless and was fraught with the greatest danger to the ships, for the enemy's guns rendered it necessary to employ battleships, and battleships were certain to be sunk by the enemy submarines unless their visit was unexpected and of short duration. He added that General Foch on one occasion had asked for and got ships when he had not the least intention of pressing an attack home, and had explained later that he only wanted them to draw the enemy's fire in order to ascertain if the enemy's guns were really there.[1]

In spite, however, of the Rear-Admiral's opinions, the French were constantly asking for naval assistance and the Admiralty were inclined to lend them a willing ear. On December 25, for instance, Colonel Bridges wrote stating that an advance was intended on the line Lombartzyde Bains, half a mile from Lombartzyde–St. Georges.[2] The Germans, he said, were very much afraid of the ships' fire and the French were asking for it; the weather was perfect, and one of the Rear-Admiral's surprise bombardments on Westende Bains, Slype and Slypberg Brasserie du Lion d'Or " would help a lot."[3]

The Rear-Admiral did not agree and on December 28 he again expressed his views on the subject to the Chief of the War Staff. Under present conditions he did not think the ships did very much good; the enemy's guns were large and well concealed and could only be disabled if actually hit by our shell. On October 17 he had been told that if the flotilla could keep up a fire for 48 hours their purpose would be fulfilled. He had continued there for three weeks till it was apparent that little further good was being done. Requests, however, still continued to come in for the ships' fire and might continue to do so for months. On October 17 he had been asked to fire at Westende and the same request was again being made, though he considered it quite impossible to retain a battleship in the narrow waterway available. In order to avoid actual refusals he suggested as a solution that monitors and gunboats might fire occasionally at night, and for this purpose proposed that Commander Eric Fullerton should be made Acting-Captain and placed in command of the three monitors and the *Excellent* and *Bustard*, which, with two 30-knot destroyers, would be enough to fire intermittently at night in response to any reasonable request of the French.

The *Revenge* and *Majestic* could remain at Dover ready to go to the Belgian coast if affairs became critical or if an advance in force was made.

[1] Rear-Admiral to Chief of Staff, 20.12.14, Dover/012.

[2] " Quite a serious movement and no talk of retirement."

[3] Bridges to R.-A. Hood, 25.12.14.

During November it became evident that a considerable divergence of opinion existed between the Navy and the Army, both as to the purpose of coastal bombardment and as to its utility. On the one hand the Rear-Admiral considered it a waste of effort and an unjustifiable risk except in the case of a definite Allied advance. On the other hand, the Army was inclined to ask for it for the mere purpose of creating a temporary diversion or even to assist their batteries in the discovery of enemy guns.

CHAPTER II.

BOMBARDMENTS, JANUARY–APRIL, 1915.

6. Another Request to Bombard, January 28, 1915.—Towards the end of January the French gained ground near Lombartzyde. German reinforcements were arriving at Middelkerke and West Bains and a counter-attack was hourly expected. On January 28 the French General Dimitry, looking to seaward, saw the gunboats and destroyers lying off La Panne in accordance with the above disposition apparently doing nothing, and sent a request through Colonel Bridges for them to act immediately in firing to the east of the line Westende Bains–Westende.

The Rear-Admiral in reply asked Colonel Bridges to explain that the vessels at La Panne were not there for purposes of bombardment but to guard the coast at night and were only sufficient for this purpose and were unsuitable for bombarding.[1] An additional obstacle lay in the fact that the West Deep was full of mines, rendering it impracticable for bombarding vessels to work there. The French had been asked to maintain a sufficient patrol there and to keep it swept but had failed to do so. The Rear-Admiral was not prepared to conform with the military outlook, which regarded naval vessels in the light of field pieces to be run into position at a moment's notice,[2] for in his report to the Chief of Staff he again repeated that he was doubtful of the utility of bombarding the German positions. Hundreds of heavy rounds had been fired at Westende and Slypeberg batteries without damaging a single gun. Bombardment was impracticable till the West Deep was clear of mines, and no bombardment would be of any use unless carried out with heavy guns and accompanied by an advance in force.[3]

Steps were, therefore, taken by the French to sweep the West Deep, and on February 1 and 2 their minesweepers destroyed 13 mines; but Captain Bousicaux thought that a complete clearance would be a lengthy operation. The sweepers

[1] Col. Bridges to R.A.D.P., 28.1.15, and reply.
[2] Capt. Marescaux to R.A., 3.2.15.
[3] R.A.D.P. to C.O., 28.1.15.

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were exposed to enemy fire, and without an efficient night patrol there was no guarantee against the enemy relaying mines in the dark. There were apparently about 100 mines in the West Deep, in the area east of the Bell Buoy, which tended to discount the likelihood of an enemy's attempting to disembark west of Nieuport.[1]

The work of sweeping progressed slowly. One or two minesweepers worked in the West Deep by day, sweeping as far eastward of the Bell Buoy as the weather and enemy fire would permit. The task was not an easy one and on February 20 the French sweeper *Marie* struck a mine at 3 p.m. about 1½ mile east of the entrance to Zuidcoote. The boiler exploded and the ship sank, the accident at first being attributed by the French to a British mine adrift.

7. Orders to Demonstrate—March 9.—Late in the evening of March 9 the Rear-Admiral received orders to demonstrate off Nieuport early next day, and the *Venerable* with six destroyers[2] and five minesweepers were hurried off. There was barely time to sweep the Zuidcoote Pass, but by strenuous efforts the work was done in time for the *Venerable*, which had come down from Sheerness at 16 knots, to get through at 6 a.m. on March 10. The *Excellent* and *Bustard* had already taken up a position in shallow water off Coxyde, and everything was ready to open fire, when a message arrived from Army Headquarters to say that firing would not be required till the 11th. The minesweepers under Commander Walters had already started on the West Deep, and working all that day and night got a passage swept from Zuidcoote to the Bell Buoy, meeting with only three mines.

It was intended to open fire at 9 a.m. on the 11th, but thick weather caused a delay. The *Venerable* fired only two rounds of 12-in. common shell at 11,800 yds. in the direction of two isolated houses to the eastward of Westende Bains. Mist interfered with spotting and the fire could not be observed. The enemy replied with what appeared to be 8-in. howitzers, some of the shots coming very close. The weather remained unfavourable, and at 4.25 p.m. the *Venerable* anchored off Zuidcoote Pass, where a few bombs were dropped round her without result. When morning broke on March 12 a dense fog was lying on the sea reducing visibility to one cable, which precluded the possibility of firing and prevented the minesweepers from getting to work though seven mines were sunk by rifle and gun-fire. The weather was still very thick on March 13, but in response to urgent requests from Army Headquarters the *Venerable* and *Excellent* fired for a short time.

[1] D.N.T.O. to R.A., 3.2.15.
[2] *Crusader* (Flag), *Cossack*, *Crane*, *Greyhound*, *Kangaroo*, *Leven*, also *Sargetta* and four paddle minesweepers. The *Excellent* and *Bustard* were already on the coast.

Taking up a position by the Bell Buoy, the former fired some 12 rounds by compass bearing, turning her turrets on the beam and firing with the ship's head at right angles to the line of fire, but fog made it impossible for the shore station to observe the fire. At sunset the shore 3,000 yds. away was invisible, the shore batteries were firing without result, and the squadron withdrew during the night of March 13–14, the *Venerable* returning to Sheerness and the destroyers to Dover. For 96 hours the former had been in West Deep, where a constant destroyer patrol was necessary to keep submarines at bay. Their employment as a submarine screen on these occasions diverted them from their function of patrol, a point which is emphasised by the Rear-Admiral in his report: "I am personally of opinion," he stated, "that the expenditure of ammunition[1] is greatly in excess of the moral effect obtained. The ships will do excellent service when a real advance is intended . . . but to demonstrate when no advance is intended is, I honestly believe, a mistake . . . The removal of destroyers from the Dover Patrol practically prevents the proper watching of the Straits and of the indicator nets. I endeavoured to obtain other destroyers but they were not available. For four days, therefore, the destroyer force in the Straits was perceptibly weakened, and this at a time when the new organisation appeared to be bearing fruit."[2]

The *Excellent* and *Bustard* remained behind working in conjunction with Colonel Bridges. On March 14 they opened fire for an hour in the afternoon with their 9·2-in. guns on Westende Bains and Westende respectively, at ranges of 10,000 and 15,000 yds., the shore batteries replying without result. A small wireless set had been fitted in the *Excellent* to work with aeroplanes spotting, and in spite of unfavourable weather Lieut.-Commander Digby was hopeful of obtaining good results.

8. Gunboats on April 15.—Nearly a month seems to have elapsed before any further bombardment took place. The heavy guns which were being mounted near Nieuport under Commander Halahan were now ready to engage certain batteries to the eastward of Middelkerke, and the army wanted the gunboats to proceed along the coast and disclose their position by drawing their fire.

On April 12 Lieut.-Commander Digby went to British Mission H.Q. at La Panne for instructions, and, in default of Colonel Bridges, who had been wounded, saw Prince Alexander of Teck. The batteries to be engaged were Nos. 34 and 35 between Middelkerke and Westende Bains, and it was arranged that the *Excellent* should commence fire at 4 p.m.,[3] a quarter of an hour

[1] The *Venerable* apparently expended at least 17 rounds of 12 in.; the *Excellent* 73 of 9·2 in.; the *Bustard* 61 rounds.

[2] Rear-Admiral to Admiralty, 15.3.15. This referred to an endeavour to close the Straits to submarines by nets and patrols, which will be dealt with in Part IV.

[3] Apparently on April 13.

before Commander Halahan's guns opened on them, leaving the *Bustard* to engage certain batteries in the western part of Westende Bains which were certain to open fire. Spotting was to be carried out by aeroplane and the extempore wireless installation in the *Excellent*.

Protection against submarines was afforded by two French torpedo boats, seaplanes, and the motor yacht *Perlona*, with a tug in attendance. The weather on the 13th and 14th was unsuitable, and it was not till 3.55 p.m. on the 15th that the *Excellent* proceeded to a position between Coxyde and Oost Dunkerque. The enemy batteries at once opened fire. The wireless installation would not work, and the gunboats returned the fire at 13,600 yds., spotting from the ship. For a time they succeeded in evading the fire, but at 4.40 p.m., as shells were falling close and the object of the bombardment, namely, to draw the enemy's fire, had been achieved, they withdrew and returned to La Panne. A considerable improvement was noticeable in the accuracy and vigour of the enemy's fire, and Lieut.-Commander Digby concluded his report by pointing out "that although the object to be achieved may well justify any risks being taken, the marked improvement in the enemy's shooting may possibly in the future raise the question whether the object is of sufficient importance to justify the risk."[1]

9. Preparations for Attack, April 25–27.—Rear-Admiral Reginald Bacon had now assumed command of the Dover Patrol,[2] and a fortnight elapsed before activity was renewed, this time on a larger scale. The French were considering a general attack to the north-east of Ypres, and in accordance with a request sent in by Sir John French to the British Mission on April 24, arrangements were made for a bombarding force to be present in the West Deep. On the 25th, in accordance with instructions received from the Admiralty, a force of destroyers was despatched to demonstrate off Westende at 8.30 p.m., but after discussing the situation with the military authorities, who did not want the Germans roused by a premature attack, they were recalled just as they were on the point of delivering it.[3]

The preliminary arrangements for the bombardment deserve to be mentioned as an illustration of the considerable dislocation which even minor operations of this sort caused to the patrol system at this time. The *Venerable* was at Chatham, and her movements had to be timed so as to cross the bar,[4] embark the Rear-Admiral at Dover, and reach Zuidcoote Pass at high water with the least delay. She left Chatham at 10 a.m. and was escorted to the Elbow Buoy by Nore destroyers, then turned over to four of the Dover destroyers and left Dover with the

[1] Lieut.-Commander Digby to R.-A., Dover, 16.4.15.

[2] Date of appointment, April 13, 1915.

[3] The R.-A. called it a "raid" in his report of 27.4.15.

[4] She could not cross the bar between noon and 5.30 p.m. on April 25.

Rear-Admiral and six destroyers at 3 p.m., arriving at Dunkirk about 6 p.m. Commodore (T) sent a division of destroyers under Commander England in the *Laurel*, and four[1] paddle sweepers were hurried down from Yarmouth, but as the latter had no wireless nor trained signalmen, and nothing but boats' signal books, communication with them, especially at night, was very uncertain.

The *Venerable* had calibrated at Maplin Sands on April 23, and the *Mohawk* had to hurry off to Southend Pier to get the results. Lieut.-Commander Digby had reported that the German battery near Westende could command the West Deep for 1,000 yds. west of the Bell Buoy, and as the target, some houses at the west corner of Westende, was invisible from the West Deep, indirect methods[2] of laying had to be used and the ship had to be listed to obtain sufficient elevation.

On Sunday, April 26, the *Venerable* remained at anchor with nets out near the Zuidcoote Pass with a patrol of destroyers between her and the Bell Buoy. Finally, when the West Deep had been swept and everything was ready, the attack did not eventuate, and Prince Alexander of Teck came on board on the morning of the 27th to explain that the French and Belgian Generals did not want a bombardment.[3] The Admiral hurried back to Dover and the *Venerable* returned the same evening, passing the Zuidcoote Pass at high water.

10. Arrangements for Bombardment, May 9.—On May 9 the British Mission asked the *Excellent* and *Bustard* to co-operate in bombarding Westende Bains, but the weather proved quite unsuitable for the task. At 11.16 p.m., however, orders were received at Dover from the Admiralty for the *Venerable* to be sent across, and instructions for her firing were issued by the Rear-Admiral.

She was not to go further down the West Deep than a line N. 6° W. (mag.) through the last E of the word DEEP on chart 1406; she was not to anchor, but to vary the range by turning short of or beyond a mark buoy; the commanding officer was not to risk disablement as a flooded compartment might prevent her return through the Zuidcoote Pass. He was acting under requisition from the British G.H.Q. in France, and was to communicate with the Field-Marshal Commanding through the British Military Mission at La Panne; and before deviating from his

[1] Two more, the *Devonia* and *Glen Avon*, probably joined up, the force consisting of the *Devonia, Lady Ismay, Cambridge, Westward Ho, Brighton Queen* and *Glen Avon*.

[2] Referred to as in separate enclosure, but not extant.

[3] Admiralty to R.-A., Dover, 27.4.15: "Approved to bring *Venerable* back to Dover to-night. You are quite right to be guided in your action by the French and Belgian Generals on the coast, but make certain that G.H.Q.'s know whether you are firing or not and that they agree." Dover Pack 46/31.

orders he was to require from them an assurance of the concurrence of the Field-Marshal. A wireless installation had been despatched to La Panne, and the Military Mission had been asked to select a place of observation and install the plant, Lieutenant I. B. B. Tower of the *Revenge* and a warrant officer being attached to the Mission for the purpose.

In accordance with these instructions, the *Venerable* (Captain V. H. G. Bernard) left Dover at 5 a.m. on May 10, and, escorted by the *Syren, Mermaid*, and *Falcon*, arrived at Dunkirk at 8.15 a.m. There she met the *Racehorse*, which was despatched to Dunkirk to communicate with Lieutenant Tower at Nieuport observation station and make arrangements to get into touch with the *Venerable* and observe her fire. The *Venerable* passed Zuidcoote Pass at 9.30 a.m. and laid out two buoys, No. 1 buoy in the second E of DEEP, and No. 2 in the T of WEST.[1] As nothing could be got through to Nieuport at 9.55 a.m. Flight-Commander Longmore was asked for an aeroplane to spot, and furnished one promptly. The enemy's fire was too hot at No. 1 buoy, and the *Venerable* opened fire from No. 2 buoy at 10.49 a.m. Firing was continued intermittently during the day; the arrangements for observation from shore never materialised, and, as delays occurred in communicating with the aeroplane, the rate of fire was necessarily slow.

11. Breakdown of Observing Arrangements.—As an example of the difficulties which occurred in early bombardments, the details of the breakdown of the observing arrangements are not without interest. At 10 a.m. the *Racehorse* was sent in to ascertain why Nieuport observation station was not communicating with the *Venerable* by wireless. She returned at 2 p.m. with the information that there was no wireless station at Nieuport, and that though the wireless at La Panne was in working order the telephone wires between Nieuport observation station and La Panne had been severed. "Colonel Tyrrell would very much like to see Captain Bernard and 'explain matters' if he would land at Dunkirk and motor to La Panne." Commander Swabey was sent to Dunkirk in the *Racehorse* and motored to La Panne, returning at 8.30 p.m. with the information (a) that Lieutenant Tower and the warrant officer were being utilised entirely for the observation of the fire of Commander Halahan's guns, and additional observers would be required for the *Venerable*, (b) that the wireless set had an accident that morning and was under repair, and that if it was to be kept at La Panne Colonel Tyrrell would require a lorry and chauffeur for transport. There could be little doubt that the shore guns had monopolised the observers and apparatus ashore, and the *Venerable* must make other arrangements. This she had already done by obtaining another aeroplane

[1] Chart 1406.

from Flight-Commander Longmore, with the aid of which firing was continued intermittently till 6.20 p.m., the results of each round " being most efficiently spotted and signalled." Twenty-two 12-in. rounds were fired altogether, falling in Westende and Westende Bains, with a maximum elevation of 20·3°.

Commander Swabey, on his return, brought information from the British Mission that firing would not be required on the 11th, and the *Venerable* accordingly left for Dover at 9.15 p.m. escorted by four destroyers and arrived at 0.40 a.m. the next day. This ended what may be called the initial stage of bombardments on the Belgian coast.

CHAPTER III.

ADMIRAL BACON'S BOMBARDMENTS, 1915 AND 1916.

12. Vice-Admiral Bacon's Bombardments.—Vice-Admiral Sir Reginald H. Bacon was appointed to succeed Rear-Admiral Horace Hood at Dover on April 13, 1915. For several years he had been Managing Director of the Coventry Ordnance Works; for some months during the war he had been working with the heavy howitzers in France, and, on assuming command at Dover, it was natural that he should devote his attention to the organisation of a system of bombardment suitable to the Belgian coast. Rear-Admiral Hood had lacked monitors suitable for working in its shallow waters, but these were well in hand, and meanwhile Admiral Bacon commenced experiments in the Swin with the old battleship *Revenge*. On the arrival of three 12-in. monitors in August, 1915, the bombardments assumed a different character, involving an extensive and detailed organisation. They changed, too, in their nature; for instead of being performed in conjunction with the military, they tended to become independent operations aiming at the destruction of docks, locks, and submarines. Operations of this sort were faced with special difficulties, and Admiral Bacon's bombardments represent what may be called the second stage in the development of methods of bombardment. Admiral Bacon drew up a long paper on the subject in August, 1915, in which the difficulties to be faced, viz., hostile fire, mines, and submarines, were enumerated and analysed one by one. The two former were to be met by the old methods of keeping under way and using minesweepers. To overcome the latter a new stratagem was to be tried. The bombarding vessels were to be surrounded by a " zariba " of mine nets and indicator nets laid by drifters, and it was considered that this, in conjunction with destroyer patrols, secrecy, and shortness of stay, would constitute a sufficient protection against submarines. The gunnery difficulties to be overcome were no less formidable. The problem of obtaining hits at a long range against invisible

targets on land was one which, previous to the war, had never received the attention it deserved, and was never properly solved by the Navy till late in the war. Experiments with aircraft in the Swin had been disappointing,[1] and Admiral Bacon reverted to the old system of two observation stations and a grid, which had been in use in the Army for a number of years. To adapt this method to the conditions required he resorted to the use of " portable islands." There were available for this purpose some tripods of railway iron which Sir Reginald earlier in the year had suggested for use in blocking the Straits of Dover. Four of these were now fitted with observing platforms; in their new form they weighed some five tons, and accommodated two observing officers, two signalmen, instruments, and an acetylene signal lamp. Two dockyard craft, *C*.64 and *C*.65, and two other small vessels, the *Gransha* and *Curran*, were fitted as " observation ships " to carry them slung from a derrick and lay them out. Immediately they were laid the instruments were to be levelled, the zero line brought to the " point of reference "—some conspicuous mark ashore—and angles taken to ascertain their correct position. The fall of shot was then to be observed by means of the artillery " grid," a device too well known to require description,[2] and suitable codes were supplied for signalling the fall.[3] In the original orders this method was apparently intended to correct the slow, deliberate fire of the opening salvos only, and as soon as rapid fire commenced the spotting was to be done by seaplanes and wireless. In the event of the weather being too thick, the left[4] station was not to be laid, and the right one was to be used merely as a directional or aiming mark, its position relative to the shore marks being obtained by boat. This system seems to have worked only fairly satisfactorily in practice; it was abandoned before the end of the year and the development of observational methods actually followed entirely different lines, leaving the " portable tripods " high and dry. The second special feature of the system of 1915 was the " zariba," which consisted of some nine miles of mine nets and seven miles of ordinary indicator nets to be laid by 28 mine net and 14 indicator net drifters respectively. These nets formed three sides of a rectangle, and were laid so that the side facing the submarine base was left open to attack, on the assumption that this was the least likely direction from which a submarine would approach.

13. Bombardment of Zeebrugge, August 23, 1915.[5]—The preliminary arrangements were finally perfected, and Zeebrugge was selected for the first bombardment. The operations had in

[1] " Merely a record of failures," Bacon I. 77.

[2] Based on plotting from intersection of two lines of bearing.

[3] In Bacon's 1915 system the observation station signalled G.M.T. of fall of shot (minus time of flight), right or left and the grid angle. Thus " 000 P. 0230 " read " 0m. 0s. left 2° 30′."

[4] That is " left " looking towards the target.

[5] *See* Plan I.

view the destruction (a) of the locks and caissons and buildings adjacent to them—Target No. 1, (b) of the submarine building factory at Solvay—Target No. 2. A flotilla of no less than 77 vessels was to be employed in the task, organised as follows :—

Bombarding vessels—three monitors :—

Sir John Moore (Commdr. Stanley Miller).
Lord Clive (Commdr. Norman H. Carter).
Prince Rupert (Commdr. H. O. Reinold).

Observation ships :—

*Gransha, Curran, C.*64, *C.*65.

Destroyer Patrols :—

No. 1, *Cossack ;* No. 2, *Crusader* and *Saracen ;* No. 3, *Afridi* (under Commdr. R. H. Coppinger) ; No. 4, *Amazon, Ure* (under Commdr. H. G. L. Oliphant) ; No. 5, *Viking, Ghurka ;* No. 6, *Tartar, Mermaid* (under Commdr. E. R. G. Evans, C.B.).

Aircraft ship :—

Riviera (Flight-Commdr. E. D. M. Robertson).

Drifters (under Captain F. G. Bird) :—

Fifty, including 28 mine net and 14 indicator net drifters, 1 officer's drifter, and 4 attendant on the observation ships.

Minesweepers :—

1st Division (under Commdr. W. G. Rigg)—*Marmion II, Albyn, Duchess of Montrose, Ravenswood.*

2nd Division (from Grimsby under Acting Capt. R. H. Walters)—*Westward Ho, Glen Avon, Brighton Queen, Cambridge,* and *Jupiter II* (from 1st Division).

The minesweepers were to sweep from a position five miles south-east of the North Hinder up to the anchorage, as shown in the chart of operations,[1] and the observation stations were to be laid some 10,000 yds. from the end of Zeebrugge Mole about 8,000 yds. apart, the monitors anchoring north (mag.) from the Mole, about 4,000 yds. further out, the *Lord Clive* being then some 17,000 yds. from No. 1 Target (the locks) and 18,000 yds. by map range from the factory. The monitors were to fire at anchor unless the enemy's fire became too hot, when they were to steam up and down between mark buoys ; in the event of the

[1] This was a portion of X 96, and formed enclosure 6 to Dover Letter, 29.8.15, M.06673/15, but is missing. The chart in Bacon I. 85 gives the position of the monitors and observation station, but does not say whether these are the actual or intended positions.

observation stations breaking down, the monitors, being almost on the same bearing as the right (or west) observation station, could spot instead of it, and some of the destroyers were supplied with graticule spotting glasses to take the place of the left (or east) station.

14. Instructions for Proceeding.—To avoid observation by aircraft, the units assembled at the following different places :—

Middle Deep :—
Sir John Moore, Lord Clive, Prince Rupert, Patrols Nos. 1, 2, 3, *Cossack, Crusader, Saracen.*

Margate Roads :—
Aircraft Ship *Riviera,* Observation Ships, each with drifter in tow. Patrol No. 4, *Nubian,*[1] *Ure.*

Dover :—
1st Division Minesweepers (minus *Jupiter II*), Patrols Nos. 5, 6, *Viking, Ghurka, Tartar, Mermaid.*

Kentish Knock :—
Mine net drifters two miles east, indicator net drifters one mile east.

On the way from Grimsby :—
2nd Division minesweepers (*Jupiter II* to join).

All vessels except minesweepers were ordered to rendezvous on August 21 at 7.30 p.m. off the Galloper light vessel,[2] the drifters in two lines disposed abeam one mile apart ; the *Riviera* and observation ships between the lines of drifters two cables apart ; the monitors in single line abreast three cables astern of the rear observation ships with destroyers ahead, astern, and on the beam outside the drifters.

CRUISING FORMATION.

T.B.D.s.

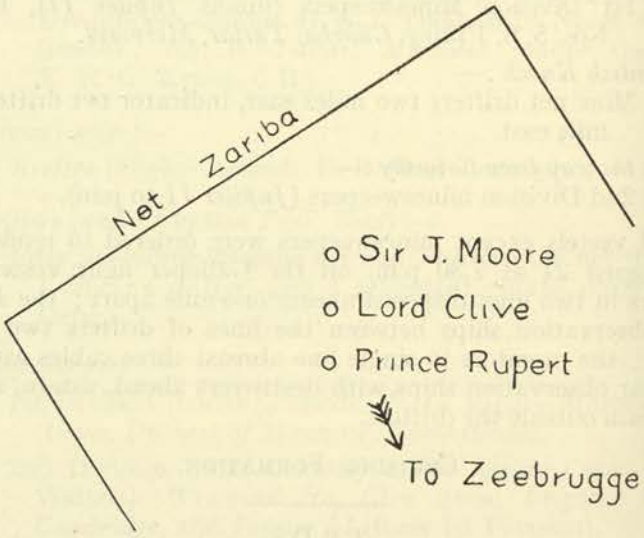
T.B.D.s. Drifters. *C.*64. *Riviera. C.*65. Drifters. T.B.D.s
Gransha. Curran.
Prince Rupert. Lord Clive. Sir John Moore.
T.B.D.s.

The Fleet was then to proceed at 6½ knots to a position five miles south-east of the North Hinder,[3] 32 miles from the Galloper. There the Fleet was to be met by the two divisions of minesweepers. Between them and the position to be taken up would then lie Thornton Ridge, some 13 miles to the south-east,

[1] Commdr. H. G. Oliphant (of *Amazon*) was in *Nubian.*
[2] Lat. 51° 43′ N., Long. 1° 57′ E., extinguished October 27, 1915.
[3] Dutch light vessel moved to Lat. 51° 48′ N., Long. 2° 40′ E., in Oct., 1914, remained alight.

a shoal running north-east and south-west about three miles long by half a mile broad, with depths of two to three fathoms in places.[1] This required to be buoyed, and T.B. 24 from Dover was ordered to lay light buoys at the north-east and south-west ends. From the North Hinder rendezvous observation ships Nos. 2 and 4, with the 4th T.B.D. Patrol and 1st Division of minesweepers, were to steer for the north-east end of Thornton Ridge, 13 miles to the south-east. The rest of the Fleet was to proceed to the south-west end (some 17½ miles), and from there the monitors in single line ahead on the *Sir John Moore* were to take up their firing positions, the 5th and 6th patrols laying buoys to guide them in, and the drifters proceeding independently to shoot their nets.

DISPOSITION OF DRIFTERS



To ensure a further measure of destroyer support, the Vice-Admiral informed Commodore (T) of the impending operation, and asked him to patrol the water between the North Hinder and the outside of the net area near the Schooneveld Bank.[2]

15. Bombardment under Difficulties.—The 21st of August was the day originally chosen for the start, and at 1.30 p.m. the monitors and destroyers weighed and proceeded to the Galloper. Difficulties presented themselves from the beginning. The *Prince Rupert* could steam only six knots instead of six and a half, and the beam wind of force four gave the monitors a leeway of nearly two and a half points, with the result that they lost the tide and were one hour and a half late at the rendezvous.

[1] *North Sea Pilot*, IV, 1909, p. 37. [2] V.A. to Commodore (T), 19.8.15.

A signal came in from the *Nubian* that one observation station had been washed overboard and the instruments lost. Then came another from T.B. 24 to say that the weather would prevent her from reaching Thornton Ridge (15 miles N.N.W. of Zeebrugge) before daylight. As the buoys to be laid by her marking the ends of the ridge were to be the final points of departure and were an integral part of the operation, it was decided to abandon it for that day, and the vessels returned to their anchorages. On August 22 the monitors weighed at noon and again rendezvoused with the Fleet off the Galloper, proceeding about 7.30 p.m. in cruising formation for the position five miles S.E. of the North Hinder. Meanwhile, the *Cossack* had been despatched to lay the buoys on Thornton Ridge. Lieut.-Commander Viney sighted the red watch buoy at the north-east end of Thornton Ridge at 10.45 p.m. and sounded. The soundings of eight to ten fathoms did not correspond with the chart, and he assumed that the buoy had been moved, but soundings to the south-west gave depths of six to seven fathoms (instead of three), and it was concluded that the depths on the ridge (last surveyed in 1840) had considerably altered,[1] and the green buoy was dropped in a position found later to be too far to the westward. The same process was repeated at the south-west end ; again the depths did not agree with the chart, and the red light buoy was dropped " in what was considered the charted position of the south-west end,"[2] which actually turned out to be a mile to the eastward and three-quarters of a mile to seaward of the intended position.

Meanwhile, the 1st Division of minesweepers had reached the North Hinder rendezvous at 10.55 p.m., and proceeded to sweep to the north-east end of Thornton Ridge, arriving there at 2.20 a.m. on August 23. The 2nd Division left Harwich at 6 p.m. on August 22 and rendezvoused with the Flag off Galloper Light.

When the Fleet arrived at the North Hinder, the *Nubian*, *Ure* and one tripod ship, the *C*.64, were detached to the north-east end of Thornton Ridge to pick up the 1st Division of minesweepers and lay the eastward observation station. After a slight delay, arising from the buoy being out of position, the minesweepers were picked up, and the destroyers followed astern of them with the tripod ship. Meanwhile, the main body had gone straight to the south-west end of the ridge, and at 3.45 a.m. sighted the red light north-east one mile. The drifters spread to form the " zariba," but the misplacement of the buoy, in conjunction with a heavy mist over the shore and a feeble dawn, made it difficult to pick up the shore marks, more especially Knocke Light, till near the anchorage, and resulted in the Fleet

[1] The V.-A. in his report stated that Lieut. Commdr. Viney's report showed that the shoal had entirely altered its nature.
[2] Lieut. Commdr. Viney, 25.8.15.

being a mile to eastward of its intended position.[1] Eventually the drifters got into their positions, and at 5 a.m. dropped their dan buoys and commenced to shoot their nets; the minesweepers retired to the northward clear of the range, and the monitors anchored in the arranged order some 1,500 yds. further from the shore than was intended. The west observation station experienced considerable difficulties in taking up its position; the 2nd Division of minesweepers got in its way, the toggle for slipping the tripod hung up, and the enemy opened fire from a battery at Duinbergen, to the left of Heyst, and from one in the dunes between Zeebrugge and Blankenberghe, dropping several shells within 25 yds. of it amongst the minelayers, and destroying kites in the *Glen Avon*, *Brighton Queen* and *Cambridge*. Eventually, however, the tripod was laid; as soon as the laying ship withdrew the fire ceased, indicating that the tripod was probably invisible from the shore.[2]

A light breeze (strength 2 to 3) was blowing from the west. The tide was making and setting on to the land when the monitors anchored. At 0536 on August 23 the *Sir John Moore* opened fire at No. 1 Target (canal locks), followed almost immediately by the *Lord Clive*. The ranging shots fell short, but the range was quickly obtained by the *Lord Clive*, which kept up a steady fire on Target No. 1, with sight ranges varying between 20,000 yds. 20 R at the start and 19,400 yds. 15 R at the conclusion. The other two monitors were less fortunate. Their turrets had been taken from the old battleships of the *Majestic* class, and during the trials in the Swin numerous breakdowns had occurred on account of the inability of the hydraulic piping to stand the strain of re-erection. After the *Sir John Moore* had fired nine rounds the leather to the upper joint of the left walking pipe blew out, the main pressure failed, and the turret could not be brought into action again before the "cease fire" sounded. In the *Prince Rupert* the electrical connections to the director broke down from the first, though they had been working ten minutes previously. An attempt was made to train by order from the director position, and six rounds were fired in this way; then training was shifted to the turret training position, which took ten minutes (seven rounds); finally the turret was trained and laid by order from the director top (six rounds). The *Lord Clive* after firing 31 shots at the lock, of which four were plotted as hits, was ordered at 0700 to shift target to the Solvay Submarine Factory, and got in eleven shots with sight ranges varying from 21,100 yds. 5 R to 21,300 yds. 8 R. Reports were received frequently from the east observation

[1] Bacon's report. The *Mermaid* had also laid a buoy in a position T, about 1½ mile to westward of the monitors' anchorage and remained near it, showing two red lights to guide them. Position of *Lord Clive* was plotted as Knocke Light 52° left Chimney of Factory, 13° Blankenberghe Church Tower.

[2] Commdr. W. Bickford was in west, Lieut.-Commdr. F. H. Lewin in east observation station.

Omit.

being a mile to eastward of its intended position.[1] Eventually the drifters got into their positions, and at 5 a.m. dropped their dan buoys and commenced to shoot their nets; the minesweepers retired to the northward clear of the range, and the monitors anchored in the arranged order some 1,500 yds. further from the shore than was intended. The west observation station experienced considerable difficulties in taking up its position; the 2nd Division of minesweepers got in its way, the toggle for slipping the tripod hung up, and the enemy opened fire from a battery at Duinbergen, to the left of Heyst, and from one in the dunes between Zeebrugge and Blankenberghe, dropping several shells within 25 yds. of it amongst the minelayers, and destroying kites in the *Glen Avon*, *Brighton Queen* and *Cambridge*. Eventually, however, the tripod was laid; as soon as the laying ship withdrew the fire ceased, indicating that the tripod was probably invisible from the shore.[2]

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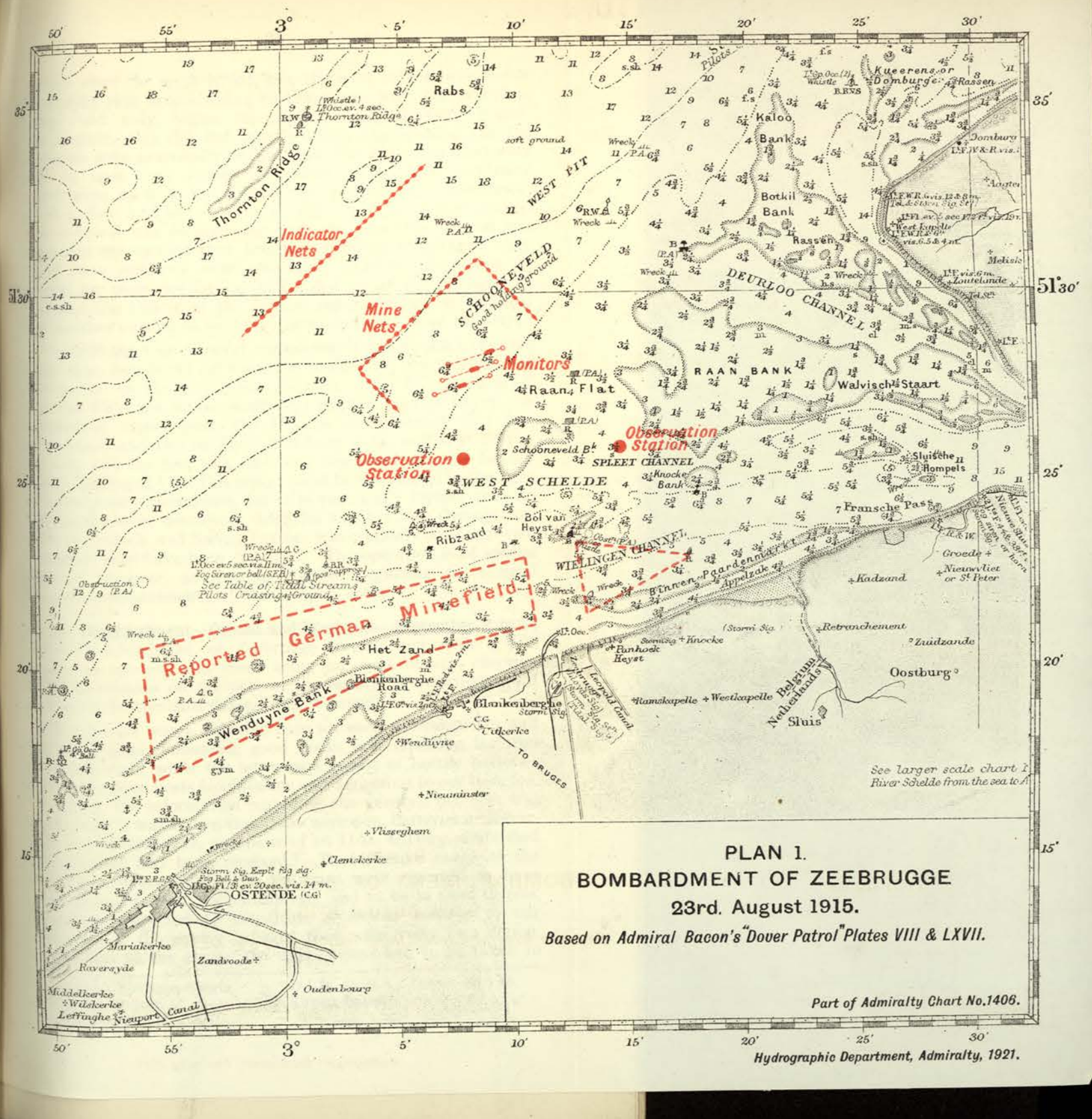


PLAN 1.
BOMBARDMENT OF ZEEBRUGGE
23rd. August 1915.

Based on Admiral Bacon's "Dover Patrol" Plates VIII & LXVII.

Part of Admiralty Chart No.1406.

Hydrographic Department, Admiralty, 1921.

station after the sixth round, but the west station was slower in getting into action owing to difficulties with the acetylene lamp, and only began reporting at the thirtieth round. Fortunately, this did not greatly affect the spotting, as the monitors were practically on the same line of bearing, and were able to spot their bursts themselves. The three seaplanes[1] which went up from the *Riviera* were of little or no assistance, as they flew at 3,500 to 4,500 ft. and could not see anything. The Admiral was disappointed with the part they played and expressed the opinion that, had they dropped to 1,000 ft., they could have rendered more assistance, and that there was no excuse for their not having attempted to do so,[2] though the Commanding Officer of the *Riviera* reported that he regarded the weather conditions as " very unfavourable " from the start.[3]

At 0730 the Vice-Admiral, considering it undesirable to remain more than two hours off the coast and risk a concentration of submarines on the way home, gave the order to " cease fire," and the Fleet got under weigh and reached port in safety. A subsequent report from the Belgian coast stated that two submarines and two dredgers had been sunk, and that Solvay Factory and the first lock had been destroyed and one factory partly destroyed,[4] but this report must be discounted in the light of subsequent information, for it is practically certain that no submarines were destroyed, doubtful whether any damage was done to the lock, and Solvay Factory was certainly not destroyed, though it may have been damaged. The operation is of special interest, however, as representing the beginning of Admiral Bacon's bombardments of the Belgian coast.

16. Bombardment—Ostend and Westende—September 2 to 7.—The bombardment of Zeebrugge having met with a fair degree of success, and there being no signs of any effective counter-measures on the part of the enemy, preparations were now made to bombard Ostend and Westende.

The former was a valuable base for enemy submarines and T.B.D. flotillas, possessing good docks and repairing facilities for small craft, while the latter was a nest of hostile batteries and observation posts troublesome and dangerous to our trenches. As before, the information regarding the enemy's defences was scanty, but it was known that there were 6-in. batteries at Raversyde and Middelkerke, and news of an 11-in. battery established near Ostend had been received.[5] The effective range of the latter was unknown, but as the guns were reported to have come from a fort at Wilhelmshaven, and to be in steel turrets, they were expected to constitute a serious menace to our operations if the enemy brought them effectively into action. In addition to the above, the usual means had to be taken to

[1] 225 h.p. Sunbeam-Shorts.
[2] Bacon, Report.
[3] *Riviera*, 24.8.15.
[4] D.I.D. to R.A., Dover, 30.8.15.
[5] Tirpitz Battery.

deal with hostile submarine and T.B.D. attacks, submarine minelaying, and adverse weather conditions, while the necessity of having primary and secondary spotting organisations tended to complicate the operations. The preliminary arrangements were on broadly similar lines to those for bombarding Zeebrugge, except that the firing ships were to remain under way, and the observation stations were to be kept manned throughout the entire operation.

17. Forces Employed and Bombarding Arrangements.—Admiral Bacon used all his available forces for these operations, and organised them in two divisions, with the seaplane ship, six minesweepers, and one T.B. patrol working as a detached force. The 1st Division formed the main body for bombarding Ostend, and consisted of all the monitors, two T.B. patrols, three observation ships, the necessary net drifters, and the *Attentive* as guide of the Fleet.

The 2nd Division consisted of the *Redoubtable*,[1] *Excellent* and *Bustard* as firing ships, *Menelaus* and *Peary* for the kite balloon, one T.B. patrol, one observation ship, and a section of net drifters. These were for operations off Westende, to be carried out quite independently of the 1st Division, which was to rendezvous two miles south of South Goodwin light vessel. After one or two units had joined the Fleet, the final organisation was as follows :—

ORGANISATION.

Division I.		*Division II.*	
Lord Clive (Flag).		*Redoubtable* (Senior Officer).	
Prince Rupert.		*Excellent.*	
General Craufurd.		*Bustard.*	
Sir John Moore.		*Amazon*, *Saracen*, *Nubian*	No. 3 T.B.D. Patrol.
M.25		*Gransha* (No. 3 Observation Ship).	
Attentive.		*Menelaus*, *Peary*	K.B.
Crusader, *Cossack*, *Mermaid*, *Racehorse*	No. 1 T.B.D. Patrol.	8 Drifters.	
Viking, *Ure*, *Tartar*	No. 2 T.B.D. Patrol.		
		Detached Force.	
Curran No. 4, *C.65* No. 2, *C.64* No. 1	Observation Ships.	*Riviera* (Seaplanes).	
43 Drifters.[2]		7 Minesweepers.	
		Kangaroo, *Crane*, T.B. 4	No. 4 T.B.D. Patrol.

This time, however, instead of going north of the shoals the Fleet was to proceed *via* Dyck Light, Dunkirk, Zuidcoote

[1] *Revenge*, renamed *Redoubtable*.
[2] Captain Bird's List gives a total of only 40 drifters.

Pass, across the west end of Smal Bank, and thence to firing positions west of East Breedt Shoal. The drifters, with 30 ft. mine nets, were to take station on either beam of the Squadron, and Destroyer Patrols Nos. 1 and 2 were to form a screen enclosing the entire Fleet. The observation ships were to accompany the Fleet until past the Smal Bank, and then proceed to their respective positions to lay their tripods, with observation station No. 4 accompanying them as a " stand by."

The 2nd Division was ordered to leave Dover in sufficient time to negotiate Zuidcoote Pass at high water, and arrive at firing positions in the West Deep by 0600. The kite balloon ship *Menelaus* and her attached trawler (*Peary*) were to be tried on this occasion, and the balloon was to be transferred to the *Peary* when through the Zuidcoote Pass ; the observation ship was to leave the division at the Dyck light vessel and lay her tripod as soon as there was light enough to pick up the marks. No. 3 Destroyer Patrol was to screen the Division, and the *Excellent* and *Bustard* were to meet them off La Panne, and to be ready to support the observation station if necessary.

Detached Force.—The *Riviera* was to anchor off Dunkirk on the evening previous to the bombardment, and as soon as there was light enough on the following morning was to send her seaplanes to the monitors to carry out spotting as required. The six minesweepers, escorted by No. 4 T.B.D. Patrol, were to leave Dover in time to enable them to cross Smal Bank at 0130, and were to endeavour to complete the sweeping of firing positions before the Fleet arrived. On the retirement of the Fleet, the trawlers were to sweep ahead of them in order to circumvent any hostile minelaying that might have been carried out.

Targets.—The details of targets were as follows :—

Target 1. Ship-repairing Works near Bassin de la Marine.
Target 2. Electric power station at Ostend.
Target 3. Docks near Sluys.[1]
Target 4. Batteries and houses at Westende.
Target 5. Tirpitz battery.[2]
Target 6. Raversyde battery.
Target 7. Middelkerke batteries.

the monitors being allotted Nos. 1, 2 and 3, and the *Redoubtable*, *Excellent* and *Bustard* No. 4. The last three, Nos. 5, 6, and 7, were only to be engaged if absolutely necessary in the event of their becoming troublesome.

It was most desirable to avoid hitting the dwelling-houses at Ostend, in order to maintain our cordial relations with the civil population, but as some of the houses were only 300 yds. from the targets, the small margin of safety tended to hamper the bombardment unless the visibility was good.

[1] Called *Slykens* on Chart 1872.
[2] Really Hindenburg battery.

Spotting.—Spotting for the Ostend targets was to be carried out by the two observation stations, or, failing them, by the *Riviera's* seaplanes; spotting for Target 4 was to be provided by one of the observation stations working in conjunction with a shore station at Nieuport.[1] A kite balloon was provided as a secondary arrangement for the latter, and the *Menelaus* was to transfer it for this purpose to a trawler with a smaller draught of water.

18. The Bombardments, September 7, 1915.—This completed the preliminary orders, and Sir Reginald Bacon left Dover on the evening of September 2, 1915, in accordance with the programme. At this point, however, a spell of bad weather set in and drove the Fleet back to harbour. A start was again made on the 5th, but the weather once more appeared unpromising and it was not until the evening of the 6th that the Fleet finally got to sea. During the enforced delay the *Sir John Moore* and *M.25* joined the Dover Command, involving slight changes in the organisation. The *Sir John Moore* and *M.25* were included in the 1st Division, and the *Cossack* and *Ure* changed positions in their respective patrols, the former being given special orders for buoying the position for observation station No. 1.

At 6 a.m. on September 7 the Fleet arrived off Ostend, where the firing position had been swept, and the "zariba," three miles by two miles, was already laid. The weather was beautifully clear, except over the town and land, which were obscured by haze, hiding everything excepting the lighthouse and the spires of the town. Sir Reginald Bacon took the monitors as near as the net defences would permit, but the poor visibility would not allow of accurate firing without damage to civilian dwellings. There they remained for two hours and a half; then, as the weather showed no signs of improving, and the drifters were getting out of station, the nets were hauled, and the whole Fleet retired to an anchorage in the south-east end of the water between the Smal and East Ratel Banks.[2]

Both tripods had been laid according to plan, and when the Fleet retired, observation station No. 2 was successfully weighed, but the tide had risen too high to permit the lifting strops being rove round station No. 1, and it had to be left behind.

At about noon, while the Fleet was at anchor, several attacks were made by hostile seaplanes and aeroplanes. In order to reduce the chances of being hit by bombs, the Fleet weighed, and as the weather appeared to have cleared, course was again set for Ostend. They were not, however, to reach it unscathed. The *Attentive* was proceeding at low speed with the observation ships, attendant drifters, and destroyers through the narrow channel west of the East Breedt Shoal, when another aeroplane

[1] The Templar's Tower, communicating by telephone to La Panne, and thence by W/T to ship.

[2] Lat. 51° 10′ N., Long. 2° 29′ E. (Commdr. W. Rigg's tracing).

attacked, dropping about half a dozen bombs, and the *Attentive* was straddled abaft the engine room, one bomb falling on the deck, the port side, close to a 4-in. gun. Two men were killed, seven injured, and the gun was put out of action.[1] This was the only instance during Sir Reginald Bacon's command of damage by an aeroplane bomb to a ship under weigh. At 3 p.m. on the 7th the Fleet reached the firing position, the net "zariba" was relaid, and at 3.30 p.m. fire was opened by the *Lord Clive* on the lighthouse at Ostend, with a range of 17,500 yds. on the sights.

The observation stations this time were of little use. The rising tide had prevented No. 1 station from being picked up, and as the observation ship was approaching it on the resumption of fire in the afternoon to replace the crew a shell fell close by, and it was seen that the top of the tripod had been shot away. Observation station No. 2 was relaid, but too late to be of any use for spotting,[2] so recourse had to be had to direct spotting from the seaplanes. Their wireless was coming through clearly, and it was considered that had the firing continued, they would probably have proved useful, but the enemy gave them little opportunity to demonstrate their value. The *Lord Clive* had scarcely fired a couple of rounds when she met with a startling reply in the form of a heavy shell which dropped only 100 yds. short. To test the enemy's range the *Lord Clive* turned and steamed out 1,000 yds., but the shots continued to fall close, and the enemy was evidently concentrating his fire on her. The Vice-Admiral turned again at 3.46 p.m. to engage him, but, during the turn, two shots passed just over the ship, landing in the bulge and tearing the plating, and it became quickly evident that the enemy's fire could not be evaded for very long, and equally evident that a single shot would cause very serious damage. It was impossible to locate the guns, and the Admiral considered it advisable to retire, leaving Tirpitz battery master of the situation.[3] Meanwhile, the *Redoubtable* (Captain V. B. Molteno) had proceeded from Dover and anchored as ordered at 2315 on September 6 at the west end of West Deep. There she had the misfortune to ground[4] at 2.50 a.m. on the 7th while shifting berth, due to the general unhandiness of the ship as fitted with bulges, and to the fact that the soundings did not

[1] Recoil cylinder and spring case of "P.4" gun pierced by fragments.

[2] It was only able to mark the last four rounds, and when the Fleet withdrew was towed into deep water and capsized.

[3] Ammunition expended:—*General Craufurd*, four rounds, two ashore; *Prince Rupert*, five rounds, one ashore; *Lord Clive*, three rounds, one hit East Pier; *Sir John Moore*, two rounds, all short; *M.25* nil. Damage to *Lord Clive*, starboard No. 2 pom-pom carried away; No. 92 bulge compartment holed; one shell exploding by the bows shook turret mounting severely and strained the walking pipe.

[4] In four fathoms on the edge of Smal Bank, about half a mile N.W. of No. 2 buoy, at N. end of Zuidcoote Pass (Chart 1872). Draught forward 27 ft. 6 in., aft 27 ft. 11 in.

correspond with the chart. She came off safely at 0840 on the rising tide without sustaining any damage, and the division proceeded to their firing positions. All preliminary work had been done. Observation station No. 3 had been laid by the *Gransha* at 0425, the net " zariba " was in place, the kite balloon had been transferred from the *Menelaus* to the *Peary*, and the *Excellent* and *Bustard* were standing by out of sight of the enemy. At 0943 the *Redoubtable* opened fire on Westende at a range of 14,500 yds., and the enemy replied almost simultaneously with what appeared to be 6-in. guns. The *Redoubtable* fired eight rounds, and Captain Molteno then withdrew out of range, as his ship was being straddled and hit by the enemy. While doing so she was again hit, but at 17,000 yds. the enemy's guns evidently reached their extreme range, and there was just time to fire four more rounds at Westende before returning through Zuidcoote Pass.[1] The crew of the observation station was withdrawn under fire, and the tripod towed into deep water and capsized.

This brought the operation to an end. At Ostend the lighthouse had been wrecked, the East Pier damaged, and a corner of the Atelier de la Marine set on fire. At Westende there were signs of damage by fire. Considering the large number of vessels engaged, the results achieved seem small in comparison with the efforts expended, but the Vice-Admiral pointed out that the material damage done by shell fire was not the sole consideration. Valuable experience had been gained. The futility of ships engaging land forts which could outrange them had received a practical demonstration. The disadvantages of the " zariba " system were becoming evident, and the Vice-Admiral pointed out that where it was employed little variation could be made in the original plans, which were largely dependent on weather conditions and tides.[2] The bombardment had also led to the disclosure of Tirpitz battery, which called for a change in the methods of attack, and demonstrated the necessity of 15-in. guns.

19. Bombardment, September 19, 1915.—The experience gained in the trials on the Swin and in the bombardments of August was embodied in " Standing Orders for Operations on the Belgian Coast,"[3] which includes most of the features of the bombardment of August 21—the " zariba " of drifters, the use of tripods as observation stations, and of a shore " point of reference "—and may be regarded as an exposition of the first phase of Admiral Bacon's bombardments. The disclosure of

[1] The ship received three hits ; one exploded on main deck, wrecking sick bay ; the next passed through the anchor bed and burst in the oil store ; the third burst close to the bulge just before the after bridge. Two men were wounded.

[2] Bacon, Report, 8.9.15.

[3] The issue is dated August 15, 1915, 15 pp. fcap.

Tirpitz battery had a disconcerting effect on operations at this stage, but in spite of the serious restrictions imposed by it, the arrival of the 15-in. monitor *Marshal Ney* (Captain Hugh M. Tweedie) offered a prospect of success, and it was decided to bombard Ostend on September 15.[1] The targets chosen for attack were :—

No. 1. Ship-repairing works (Atelier de la Marine).
No. 2. Electric power station.
No. 3. Docks near Slykens, viz., the Bassin d'Evolution, Bassin Canal, and Bassin à Flot.
No. 4. Battery of heavy guns to westward of Ostend.

The force again consisted of two divisions : in the first were *Lord Clive* (Flag) and *Sir John Moore ;* in the second the *Marshal Ney, Prince Eugene,* and *Menelaus,* the whole with the usual destroyer escorts and the usual detached force of minesweepers, drifters and observation ships, including the *Riviera.* The first division was to engage Targets Nos. 1, 2 and 3 ; the second, Target No. 4. The force was to proceed as usual to the West Deep, and it was hoped that the 15-in. guns of the *Marshal Ney* would be able to restore our fire to something like its previous efficacy. She had just joined the patrol, and her guns were expected to range 25,000 yds., or 4,000 more than the 12-in. monitors. But her engines were not on a par with her guns. Her slow speed of barely five knots was a serious disability in difficult tidal waters, and her engines acquired an unenviable notoriety in the patrol. When they did not burst they would not start, and " when once started, no one liked to stop them for fear of not being able to start them again."[2]

The methods of spotting and observation were somewhat modified. One station was to be ashore at Nieuport and the other in the *Attentive,* with two instruments (one for each division) at each. The spotting results at Nieuport were to be telephoned to La Panne and thence by acetylene lamp to the *Marshal Ney* and *Prince Eugene* (first instrument), and by searchlight to *Lord Clive* and *Sir John Moore* (second instrument). The tripod observation stations were to be laid, but were relegated to the subordinate part of transmitting signals, one between the *Attentive* and the first division, the other between La Panne and the second division, though there is no actual report of their being used in this capacity.

Weather again interfered with the operations. The Fleet left on the evening of September 15, but it was not till the 19th that they were able to fire, by which time the *Prince Eugene* had run short of coal and had to return to Dover. The *Lord Clive* opened fire at 12.5 p.m. on Middelkerke right battery at

[1] Operations on Belgian Coast, Memo. 012 BC/2, about September 14, Dover Papers, File 31/B.

[2] Bacon, I. 27.

25,000 yds., but was quickly driven further out, and waited for the French batteries to engage ; reopening fire about 1 p.m., she fired 17 rounds and was accorded one hit. In the afternoon she opened fire on the Bellevue Hotel at 18,700 yds., and after nine rounds hit the roof and blew part of it off. She then returned to Dunkirk.

Meanwhile, the *Marshal Ney* had opened fire on Westende battery at 15,000 yds., but receiving no spotting reports, and being straddled by Tirpitz, drew out of range through Zuidcoote passage. Nothing daunted, she returned at 4 p.m. and engaged Raversyde battery. But a series of mishaps awaited her. After the second round the port anchor and cable ran out and brought the ship up ; the capstan would not heave in the cable, which had to be slipped ; the starboard engine would not start, and the ship grounded lightly ; the helm jammed, and the *Viking* had to take her in tow, while she careered slowly round under the port engine, which the captain dared not stop for fear it would not start.[1] In spite of these somewhat severe handicaps, she had fired seven rounds between noon and 3 p.m. and 16 in the second action, of which one was spotted as a hit. This brought the firing to an end and the ship returned to Dover, and for nearly a year Ostend was left severely alone.

20. Operations to assist Army, September, 1915.—While waiting for better weather, Admiral Bacon had visited Army Headquarters at St. Omer on September 18, and had arranged with Sir John French to carry out a bombardment of the coast simultaneously with a prospective army advance on September 25.[2] These operations lasted from September 25 to October 3, with the object of making a demonstration and retaining German troops on the coast. In these circumstances extreme accuracy of fire was regarded as a secondary consideration, and no aids to spotting were provided. The targets selected consisted of any suitable prominent objects that could be shelled without exposing the ships to hostile fire. On the 25th the *Prince Eugene* and *General Craufurd* fired 78 rounds at the coast between Knocke and Blankenberghe, and the *Lord Clive*, *Marshal Ney*, and *Sir John Moore* threw another 116 rounds into Belgium by Westende and Middelkerke. The same procedure was repeated on September 26 and October 3. Information is lacking as to the extent to which these firings fulfilled their purpose. After maintaining a promiscuous fire on the coast for four days, the Vice-Admiral considered that the " useful limit of pretence " had been reached, and the Fleet returned to harbour.

By the end of the year the enemy had located the shore spotting positions, and immediately a monitor appeared in the West Deep he commenced shelling the station at Nieuport and sometimes that at St. Georges. The *Marshal Soult* was more

[1] Captain Tweedie (r), 20.9.15. [2] Battle of Loos and Battle of Champagne.

reliable than the *Marshal Ney*, but she was too slow for inshore tidal work, and coastal bombardment operations remained more or less at the same stage till the arrival of the *Erebus* and *Terror*.

20a. Aerial Observation of Fire adopted.—Early in 1915 the question of aerial observation of fire for the Fleet was investigated by Commander Edward Altham, by direction of the Admiralty.[1] The position was that, although spotting from aircraft for bombarding operations was now feasible, investigation and practice were necessary to render it effective.[2] During the latter part of November and the first week of December, 1915, the *General Craufurd* (Commander Edward Altham) with the *Riviera* (Lieut.-Comdr. Elwell Sutton) under her orders carried out a series of trials in the Swin ; and as the result of these trials aerial spotting was adopted as the primary system of observation of fire for bombardment on the Belgian coast.

The first practical results from aerial observation during actual bombardment were obtained on January 26, 1916, when for the first time Lieut. Nutting, R.N.V.R., flying in an R.N.A.S. aeroplane, succeeded in spotting for five monitors. The *General Craufurd* alone was able to use the corrections received, the other ships not being sufficiently practised in W/T receiving from aeroplanes. But proof had been given that in aeroplane spotting a satisfactory substitute had been found for the unsatisfactory system of observation of fire from shore stations and tripods.[3] The system evolved by the *General Craufurd* was adopted, and for all practical purposes remained in use throughout the operations on the Belgian coast to the end of the war ; and the tripod system was never again employed.

21. Demonstration, September, 1916.—The *Terror* arrived in August, 1916, in time for an operation to be carried out at Sir Douglas Haig's request with a view to retaining enemy troops on the coast during his advance on the Somme. This was designed on a large scale and was intended to give the impression of an intended landing between Middelkerke and Westende. A large flotilla of 70 trawlers and 24 drifters was assembled, making a formidable display at anchor in three lines between Dunkirk and La Panne ; rumours of a large landing operation were industriously circulated, all leave was stopped in the East Coast Division, and traffic was suspended between England and Holland for two days. At Dunkirk the harbour was in a state of constant movement, with trawlers full of troops, embarking and disembarking. The operation was not confined, however, to a mere demonstration, for it included a series of bombardments which took place daily from September 8 to 15, except on the 10th and 13th, when the weather was unsuitable, and the 14th, when it blew a gale. The principal targets selected were Target A of five 6-in. guns near Westende Bains and Target B of two 6-in. guns north-east of Beau Terrain.

[1] G 01422/15 and 01819/15. [2] G 02007/15, 02167/15, and 03186/15.
[3] Commodore, Dunkirk, 21.11.15, and V.-A., Dover, reply 23.11.15, states that " shore spotting has never been satisfactory."

It is unnecessary to describe the bombardment in detail, and the *Terror's* orders for the first day may be regarded as representative of the system employed.[1] The target selected was the Zeebrugge Palace Hotel, and she was to fire from a position in Lat. 51° 29′ 25″ N., Long. 2° 56′ 22″ E., where a buoy was to be laid for her. The *General Craufurd*, in Lat. 51° 30′ 35″ N., Long. 2° 49′ 5″ E., was to serve as an aiming mark, the angle *General Craufurd—Terror*—Palace Hotel being given as approximately 146° 40′.[2] Three smoke boats were to accompany the *General Craufurd*, to be anchored a quarter of a mile inshore of the *Terror* to cover her approach.

These bombardments present certain distinctive features. The spotting was all done from on shore, and a smoke screen was used, apparently for the first time, to cover the monitors, which it did so effectually in some cases as to obscure the coast and conceal the aiming marks. In terms of hits the results must be regarded as somewhat meagre, four hits being recorded out of 233 rounds. All the monitors were engaged, the *Terror*, *Erebus*, *Marshal Soult*, *Lord Clive*, *General Wolfe*, *Prince Rupert*, *Prince Eugene*, and *General Craufurd*, and the proceedings of the *Marshal Soult* on September 11 may be given as an example of the whole. She took up a position N. 37° W., 6,660 yds. from La Panne Church, firing at Target B, viz., two 6-in. guns N.E. of Beau Terrain, at a range by chart of 22,000 yds. Her aiming point ashore was the tower of the Grand Hotel at Ost Dunkerque, 14° 50′ to the right of the target, and she fired eight rounds, all of which were spotted as short by the naval gun observers ashore,[3] whose results were signalled to the ship *via* La Panne.

By the 15th the Somme advance was well under way, and the vessels dispersed to their bases. It had been intended merely as a demonstration, and there can be little doubt that it caused considerable commotion on the coast, and appears to have led to a movement of troops to Ghent and Bruges, but till the publication of the German Staff History its value in this direction must remain largely conjectural.

The operations, however, though primarily intended as a "landing alarm," mark a distinct phase in bombardment methods. The 15-in. monitors have arrived, the "zariba" has disappeared, its place in the case of the Zeebrugge bombardments being taken by the Belgian Coast Barrage; the portable islands have vanished, and a distinct effort is being made to improve the system of spotting from ashore.

[1] The orders and reports in detail will be found in Dover Papers 46/2, Belgian Coast Operations, September 8–15, 1916.

[2] According to Capt. Douglas' Chart of May, 1918, the angle is 148° 07′; the difference, *i.e.*, 1° 27′ at a range of 27,000 yds., would amount to 683 yds., which would mean the shot falling somewhere near the Canal instead of on the Palace Hotel.

[3] On September 11 from Cote 27 B.M. and Duncan posts.

Night firing was also carried out by the *Lord Clive*,[1] and on September 24 the *Terror* again bombarded Zeebrugge from a position in 51° 28′ 24″ N., 2° 53′ 36″ E., with two seaplanes spotting, and an initial range of 27,400 yds. on the sights. Twelve rounds were fired, but the weather was hazy and unfavourable for spotting, and firing was abandoned. This was the last bombardment in 1916. The weather broke up early, aeroplane spotting became more or less impossible, and further operations had to be postponed till the spring.[2]

CHAPTER IV.

BOMBARDMENTS IN 1917.

22. Conditions on the Coast.—The bombardments of Zeebrugge and Ostend in 1917 represent the final stage of Admiral Bacon's methods, and the memorandum issued by him in March, 1917, embodies his later ideas on the subject.[3] The principal batteries on the Belgian Coast at this time were the Tirpitz, 1½ mile to the westward of Ostend Harbour, mounting four 11-in. guns, ranging 35,000 yds.,[4] and commanding the West Deep: off Zeebrugge was the Kaiser Wilhelm II Battery (known in Dover as the Knocke Battery), 3¼ miles to the eastward of Zeebrugge Canal; it mounted four 12-in. guns with a range of 41,000 yds. three miles eastward of Ostend the Deutschland Battery (formerly Jakobynessen) was in course of construction, mounting four 15-in. guns with a range of 43,750 yds.; but it was not till June, 1917, that the former came into action, while Jakobynessen Battery opened on the ships for the first time in August, 1917. The 40 miles of coast bristled with guns,[5] but these were the only batteries which could engage the monitors at effective range.[6]

Admiral Bacon adhered consistently to the opinion that there was nothing to be gained in engaging batteries, and the only motive of a bombardment of Zeebrugge lay in the possibility of damaging the lock gates, which would convert the canal into a river, and, by rendering it impracticable for navigation, constitute an achievement of great importance.

[1] Bacon, I. 96. According to orders on night of 13th–14th against the 6-in. guns near Beau Terrain with the aid of an aiming light in *M.27* anchored in 51° 10′ 6″ N., 2° 23′ 44″ E., but there is no actual report of the firing in the papers examined.

[2] Bacon, I. 97.

[3] Memo. C/108/Z, 5.3.17, in Dover Papers 46/34.

[4] Belgian Coast Report, War Supplement, May, 1918, credits the two outer guns with 38,700 yds. M.04315/18, "Lats. and Longs. of Enemy Batteries, etc., Additional Information, July 10, 1918" (No. 219), gives the ranges of the guns as 38,750–33,500 yds. C.B. 1524, "Report of Committee appointed to examine the German Defences on Belgian Coast" gives the range as 35,000, which may be considered as the final word on the question.

[5] In 1918 they numbered 6 15-in., 4 12-in., 33 11-in., 1 9·4 in., 23 8 in., 73 6-in., 6 5-in., 11 4·7-in., 52 4-in.

[6] *See* Plan II.

The arrival of the *Erebus* and *Terror* rendered it possible for Admiral Bacon to attack Zeebrugge, in spite of the Knocke Battery. The 15-in. monitors would be within range of the Knocke, but a smoke screen should be sufficient to conceal them from its fire.

This smoke screen was the most important feature of the 1917 bombardments and was provided by a flotilla of motor launches.

The zariba of nets and the observation posts have disappeared. The spotting is done by aircraft using the line of the canal as a line of direction, and the centre of the lock as a point of reference.

Admiral Bacon decided that the attack, in order to be successful, must be in the nature of a surprise, and must, therefore, take place in the early morning hours when the ships could approach unseen.[1] The ranging shots could then be fired before the locks were obscured by the smoke screen which it was suspected that the enemy had arranged in the event of attack. Moreover, time would be gained if the enemy had to send up his aircraft to spot for the batteries after our fire had commenced : once the enemy aeroplanes had spotted his batteries on to the ships the latter would have to withdraw. It was not easy overnight to forecast what the visibility would be early next morning. Moreover, the tide did not always serve to keep the monitors swung in the right direction, a calm sea was essential on account of the quick roll of the 15-in. monitors, and in order to work the smoke screen the wind had to be to the North of E. by N. through North to West. Difficulties were aggravated by having to co-ordinate the operation with aeroplanes coming from a distant base ; and finally the firing positions and the initial ranges and bearings for opening fire had to be fixed from a long dead reckoning run.

23. Intended Bombardment, March, 1917.—The firing position for the March bombardment was in 51° 40′ N., 2° 58′ 05″. This position was to be marked by a buoy laid by a destroyer, to be determined by its dead reckoning run. From this buoy (No. 3) a destroyer was to run in and obtain the bearing of certain Government buildings to the west of the root of the Mole. For different values of this bearing of the firing position from the above mark a table was supplied giving the true bearings of the lock gate from the firing position and the different ships. A back aiming light was to be provided by a 12-in. monitor anchored on a prearranged bearing some six or eight miles to seaward.

In the event of aeroplanes being unable to spot, a destroyer was to work within 18,000 yds. of the shore, spotting the ships on to the Government buildings and signalling the results to another destroyer for transmission to the monitors.[2]

[1] V.-A. Bacon's Report, 1613/C/108/R(C/135) in Dover Papers 46/34.
[2] Only in the orders of 5.3.17.

March 25 was the day fixed for the first attack, but mist made it impossible and the operations had to be postponed. Another attempt was made in April with orders framed on practically the same lines, and a start was made on April 18. Once again a series of minor mishaps intervened : the *Erebus* fouled her propeller in Dunkirk, the *Marshal Soult* parted her tow, and the favourable moment was missed. Bad weather and the inability of Commodore (T) to supply the necessary support led to further delays ; and it was not till May 11, after four abortive attempts, that conditions were at last favourable for the work.

24. Bombardment—May 12, 1917.—The forces employed on this occasion were the *Terror* (Flag) (Captain Charles W. Bruton), *Erebus* (Captain Charles S. Wills), *Marshal Soult* (Commdr. Stanley R. Miller), ten Destroyers of the Sixth Flotilla, six Paddle Minesweepers, and 19 Motor Launches (Commdr. Ian Hamilton-Benn, R.N.V.R.), with Captain Colin K. Maclean in charge of the smoke arrangements.

By now the shortening of the nights and the time of passage at 5½ knots speed (the speed of the *Marshal Soult*) did not admit of leaving and arriving during the dark hours. It was, therefore, decided to tow the *Marshal Soult* with the *Terror*, and the *Sir John Moore* with the *Erebus*.

The *Terror* left Dover at 5.15 p.m. on May 11, took Sir Reginald Bacon on board that evening, and arrived at the firing position, No. 3 Buoy in 51° 29′ 30″ N., 2° 59′ 00″ E., at 4.15 a.m. the next morning. There she was met by the *Nimrod* and three destroyers of the Harwich Force, and the *Botha*, unaware of their presence, took them for the enemy and was on the point of opening fire. No sooner had the *Terror* anchored than the motor launches raised a smoke screen, effectively concealing her from view. The direction of the wind was favourable, being E. by N., within two points of the line of bearing of the monitors, though later it shifted almost parallel to their line.

The *Sir John Moore*, which was to provide an aiming light, was forced by the poor visibility to anchor only 4,200 yds. from the *Terror* in a bearing of 312°.[1]

The true bearing of the lock gate was estimated at 139° 40′, or 330° 30′ from the training point of aim in the *Sir John Moore*.

The position of a mark (" K " Buoy) had been determined by a destroyer run, and checked by the *Lochinvar* running in to the foot of the Mole which she had to close within 1½ mile before sighting—a method of location pregnant with possibilities of error. Admiral Bacon, in fact, states[2] that the position was

[1] " Unfortunately the low visibility necessitated the aiming mark ship being 4,000 yds. from the firing line so that any error in aiming was multiplied six-fold." Bacon, Report, 19.5.17.
[2] " The Dover Patrol," I. 101.

more accurately determined by dead reckoning from the North Goodwins than by the short run into and out from the Mole. The variations introduced into the speed of the destroyer by the varying depths of the shoal water close to the shore destroyed the accuracy of the latter run.

An aeroplane from St. Pol was waiting ready to spot, and fire was opened about 4.45 a.m. The *Terror* fired 61 rounds, the *Marshal Soult* 51, the *Erebus* 63, at a range of about 26,000 yds. In the case of the *Terror* it was not till the 20th round that spotting became satisfactory, and it continued so up to the 35th at 5.32 a.m., when the machine ran out of fuel and had to return. The *Marshal Soult* had a hit signalled at the 12th round. The *Erebus* was accorded a hit at the 26th round, and received no report after the 32nd round. The rounds fired numbered 175, and 42 spots[1] were received. Of these, two were reported as hits and two within 100 yds. The aircraft met with mischances of their own, and with vigorous opposition from the enemy. The original orders provided for two machines being in attendance, but the second machine, which left at 2 a.m., had to return after half an hour owing to engine trouble, and the machine despatched to take its place never returned. This left only one spotting machine and at 5.32, having been in the air for 3½ hours, it ran out of fuel and had to go home, timing its return so nicely that it arrived at St. Pol with empty tanks. A third machine was despatched at 5.47 a.m. with orders to listen in and take over, but the monitors were under weigh before it arrived. Meanwhile, a vigorous contest had been going on in the air. A squadron of seven machines[2] had been sent out from St. Pol to patrol the coast-line, and almost immediately came into action with a hostile squadron of 15 machines, three of which were driven in to the sea. Two hostile seaplanes approaching the Fleet were driven back by two of our fighting seaplanes patrolling over it, with the result that the enemy were unable to locate the monitors and only a single heavy shell fell within sight of them, some 1,000 yds. short. Our machines did not return unscathed; two were missing, of which one came down in Holland and was interned. Perhaps the most satisfactory feature of the operation was the smoke screen which was reported as " white, thick and entirely efficient," and which, in conjunction with the work of the aircraft, paralysed the fire of Knocke Battery. Admiral Bacon in his report[3] compares the bombardment of the lockgate, which measured only 90 ft. by 30 ft., to an attempt to hit a half-smoked cigarette at a distance of 30 yds.; but considerable damage seems to have been done, though the lockgates do not appear to have been actually hit. The Naval Attaché at the Hague reported three sheds and two cranes completely destroyed and a great deal of damage done inside the port. An air intelligence report

[1] The Air Reports give 45 corrections signalled.
[2] No. 4 Squadron. [3] 1613/C/108/R in Dover Papers 46/34.

shows some 21 shots as having fallen within 50 yds. of the lock gates, of which one fell very close to the north lock[1] and dislocated the machinery of the gates so that for 24 hours they could only be worked by hand, and submarines proceeding on patrol were forced to use the Bruges-Ostend Canal.[2]

25. Bombardment of Ostend, June 5.[3]—Admiral Bacon now wished to carry out a bombardment of Ostend.

An attack on the dockyard at Ostend differed from a bombardment of Zeebrugge in two essential particulars. At Ostend the vulnerable target was much larger than the locks at Zeebrugge, but, on the other hand, the dockyard was closely flanked by the houses of the town of Ostend, which it was desirable to avoid hitting. This necessitated paying careful attention to ranging and direction of fire.

During May three attempts were made to carry out the attack. The first attempt on May 13-14 was abandoned on account of heavy rain and low clouds, which would have prevented aerial work. At the second attempt, on May 26-27, the ships arrived within two hours' steaming of the firing point when an off-shore wind sprang up and prevented the successful employment of a smoke screen; and at the third attempt, two nights later, fog necessitated the return of the Fleet when near the passage through the barrage nets. At length, on June 4, the weather cleared and the opportunity was seized to carry out the operation.

The bombardment was to be conducted by the 15-in. monitors —*Terror*, flying the flag of the Vice-Admiral, and *Erebus*. The monitors were accompanied by the flotilla leaders *Botha* (Commdr. Graham R. L. Edwards) and *Faulknor* (Commdr. Henry G. L. Oliphant, M.V.O., D.S.O.), six destroyers and two patrol boats of the 6th Flotilla, and 12 motor launches for the smoke screen. At 10 p.m. the Vice-Admiral embarked on board the *Terror* and the Fleet immediately proceeded out of harbour. At 12.55 a.m. on June 5 the *Lochinvar* and *Lance* were detached to lay a buoy in a position 13 miles N.N.W. from the Atelier de Marine—the target at Ostend. They were prevented from doing this, however, and had to retire before a flotilla of enemy destroyers which was patrolling in the vicinity of the Outer Ratel, on the route previously followed by the monitors, which Admiral Bacon had purposely avoided on this occasion.

At 2.36 a.m., just as the monitors were on the point of anchoring, heavy firing was heard and gun flashes were seen about seven miles to the north-east. Commodore (T) and his

[1] Sketch showing effects of bombardment, Intelligence H.Q's, Dunkirk, 16.5.17. Bacon in his report of 19.5.17 says: " A photograph of the results is enclosed . . . forty hits were visible." This should evidently read " forty shots are visible."
[2] Statement by prisoners of *U.C.*61.
[3] Orders marked C/108/ZBB, dated May 16, 1917.

supporting force from Harwich was engaging an enemy flotilla, and at 2.47 a.m. a W/T message was received from the Commodore that he was chasing the enemy destroyers south. The latter could, in fact, now be seen from the *Terror* retiring in disorder, and the Vice-Admiral despatched all his destroyers in the hope of cutting off the enemy from Zeebrugge. But the German destroyers were too close to the shore to be engaged by the 6th Flotilla at decisive range, though Commodore (T) succeeded in sinking one (*S*.20) and damaging two more (*S*.24 and *V*.47), and our destroyers were shortly recalled (3.20 to 3.22 a.m.) in order to take up their look-out positions against aircraft and submarines. The failure of the *Lochinvar* and *Lance* to lay the buoy after two attempts to pass the enemy flotilla necessitated the anchoring of the monitors by dead reckoning. The wash of all these destroyers caused the monitors to roll considerably at intervals while firing.

At 3.3 a.m. the smoke screen was started. By now the shore was dimly visible, but the ships were invisible to the shore batteries against the grey north-west sky. The smoke screen was not entirely successful. The wind was light and the smoke spread sluggishly and hung above the cold surface of the sea. Fire was opened at 3.20 a.m. at a range of 26,000 yds., and in four shots the aeroplane reported " line correct." Ranging short was continued, however, for another four rounds in order to ensure that the direction was correct, and then the guns were lifted 2,000 yds. on to the target, and were spotted at once as correct. Spotting corrections were generally received in time to reach the sights the third round after that to which they referred.[1]

The enemy now opened fire ; first Tirpitz Battery, and then Hindenburg,[2] and the two western guns of the Breedene Battery also appeared to join in the firing.[3] Their direction was good, the *Erebus* being straddled by two successive salvos, and it was evident that the brown cordite smoke from the monitors' guns was visible above the white screen of phosphorous smoke made by the motor boats. An attempt was made to remedy this with destroyers making black smoke. The ranging was apparently blind, for no enemy aircraft were up.[4]

At 3.40 a.m. the aeroplane reported that the smoke screen put up by the enemy was obscuring the spotting, and at 4 a.m., as practically no corrections had been received for 20 minutes, the order to cease fire was given. A hundred and fifteen rounds had been fired, and a photograph taken next day showed at least 20 hits

[1] The firing interval cannot be ascertained.

[2] The extreme range of Hindenburg was 15,300 yds. This was probably Deutschland Battery opening fire on the ships for the first time.

[3] At 26,000 yds. the ships were far beyond the range of Breedene Battery (8·8 cm. guns).

[4] Adm. Bacon, in his Report No. 1793/C/108/R(C/134), 7.6.17, in Dover Pack 46/32, says, para. 17 : " The R. N. A. Service at Dunkirk performed most valuable service." But the report of the Air Officer, stated to be attached to the V.-A.s Report, is not forthcoming.

on the dockyard and its buildings. Prisoners captured from *U*.61, which went ashore at Wissant on July 26, 1917, reported that submarine *U.C*.70 and an armed trawler were sunk in the harbour by the bombardment, and that three destroyers of the " A " class, which were unable to weigh and proceed out of harbour in time, were damaged.[1] Submarine *U.C*.70 was lying alongside a petrol lighter which was hit by a shell and exploded : both craft sank immediately, though the crew of the submarine were saved, and she was afterwards raised and taken to Bruges for repairs.

26. Belgian Barrage Patrol re-instituted.—In the bombardment of June 5 the floating dock in Ostend dockyard had not been hit, and Admiral Bacon wished to destroy it. The weeks passed without conditions being suitable for further bombardment, and the Vice-Admiral at length decided to re-institute the Belgian Coast Barrage Patrol.[2] This consisted now of one 15-in. monitor, two " M " monitors, a light cruiser, one leader and eight T.B.D.s from the ships based on Dunkirk. Thus there was always a 15-in. monitor ready to take advantage of any opportunity of firing.[3]

The large monitors were ordered to fire on the Atelier at Ostend, Blankenberghe Harbour, and the Mole at Zeebrugge whenever the weather was suitable. Firing was to be carried out under weigh on a buoyed base a mile long, using a little smoke when the wind suited. Three motor launches were attached to the patrol for this purpose, or a destroyer smoke screen could be used, and one of the small monitors was to be used as an aiming mark, or if the weather was clear the shore marks could be laid on directly. If the Army asked for certain targets to be fired on, the request was immediately to be complied with. No great importance was attached to the smoke screen, as experience had shown that there was little chance of the shore batteries hitting the monitors if they were under weigh, unless the enemy had spotting aircraft up. When all conditions of wind, weather and sea served, the monitor on patrol was to report to the Commodore, Dunkirk, and the Vice-Admiral would come out for a set shoot with motor launch screen and spotting machines and Air Patrol out, the monitors firing at anchor. This operation was known as Operation B.O.

The Patrol was instituted on July 25, 1917, and during August and September the monitors on patrol fired a few rounds at Ostend dockyard.[4] The first set bombardment was carried out on September 4 by the *Marshal Soult*, who fired two series of

[1] C/102/B/2 of 16.8.17, in Dover Papers 46/32.

[2] Known as " B.B." Patrol, *see* Part IV, 3. The original orders for this patrol were dated 1.3.16, No. 012/0 in Memo. C/97/P in Dover Papers 46/24. These were cancelled on 28.3.17. The new orders were dated 21.7.17.

[3] C/134, September 28, 1917.

[4] The reports of the Belgian Barrage Patrol are numbered C/97/A in Dover Papers 46/24.

14 rounds each at Ostend[1]; but W/T spotting communication was not good and the monitor was driven off by the fire of the shore batteries without scoring any hits on the objective. Again, on the 15th of that month, when all conditions were favourable for a bombardment by the *Terror*, the spotting aeroplanes' W/T failed.

27. Bombardments by the Monitor on Barrage Patrol.—It was not until two months had elapsed that at length the monitor on day patrol achieved a successful attack on the naval works at Ostend. On September 22 the *Terror* left her buoy off Dunkirk shortly before 3 a.m. and proceeded towards the barrage with *M*.23 (as aiming mark), three paddle sweepers, two drifters and six motor launches. At 5.20 a.m., finding conditions temporarily fair—the shore not visible, a smooth sea, and a gentle wind from the W.S.W., though with every sign of increasing wind—she decided to attempt Operation B.O. and signalled accordingly for a spotting aeroplane to be sent out. The machine arrived and was ready to spot at 6 a.m. At 6.8 a.m. the smoke boats, in charge of Lieut.-Commander Watson, R.N.V.R., started their smoke screen under very bad conditions of wind and sea, the latter being about as much as the motor boats could stand; and at 6.23 a.m., the aiming mark being in place and the *Terror* having succeeded in anchoring in a favourable position for firing, she opened fire.

Seven minutes later Deutschland and Tirpitz batteries opened fire on the ships and motor boats with great precision, being spotted on to the *Terror* by an enemy aeroplane 8,000 yds. astern (to the westward) at a height of 1,500 to 2,000 ft. A number of shots fell between 20 and 30 yds. from the *Terror*, but neither the ship nor the motor boats were hit, and the enemy aeroplane was soon driven off by the *Terror's* anti-aircraft guns. By 6·55 a.m. the conditions had become too bad for further firing, the wind had increased and the monitor was enveloped in smoke; she had fired 35 rounds,[2] and now withdrew under cover of a smoke screen made by the *Broke*.

Our fighting machines were engaged with the enemy aircraft during the bombardment. One German seaplane came down in the water[3] and was salved by the destroyer *Nugent*, and Flight Sub-Lieut. Burt of the Fighting Air Patrol was forced to descend to the eastward of the *Terror* owing to engine trouble: he was saved, but his machine sank before it could be recovered.

[1] She fired under weigh.

[2] *Terror's* Report, 22.9.17, C/134, and Summary of Patrol Work for September, 1917, No. 023 in C/97/A. But telegram from Commodore. Dunkirk, to A.P.D., 22.9.17, C.97 P., and V.A.D.P. to Adty. 629, say 36 rounds.

[3] No definite report is given whether she was shot down or came down from other causes. The pilot was saved but no trace was found of the observer. The Admiralty communiqué issued to the Press, 22.9.17, said that three enemy seaplanes were shot down.

Seven enemy seaplanes appeared close to the *Nugent* and four enemy destroyers were sighted a long way off during the salvage operations, but neither force made any attempt to attack.

Aerial reconnaissance of Ostend dockyard carried out on the following day (September 23) showed that one slip had been completely demolished and several others damaged, including one on which there was a submarine, and one floating dock had been sunk.[1]

On October 2 the German Government issued a circumstantial account of the bombardment of Ostend town on September 22 "during the burial of girls killed in the Cathedral by British shells."[2] Aerial photographs taken after the bombardment of September 22 showed that no hits were obtained on the Cathedral, though the damage to the dockyard was clearly visible.[3]

On September 25 the *Terror* repeated the bombardment of Ostend dockyard. She anchored by the stern at 3.15 p.m., and five minutes later the smoke boats, five in number, under Lieut.-Commander Dawburn Young, started a smoke screen under favourable circumstances of light airs towards the shore. *M*.25 anchored near the limit of visibility, 2½ miles north of the *Terror*, as aiming mark, and at 3.32 p.m., the aeroplane having signalled that she was ready to observe, the monitor opened fire. The enemy smoke screen on shore was efficient on this occasion, and at 3.54 p.m., after firing 31 rounds, the *Terror* was compelled to cease fire owing to the difficulty in observation experienced by the spotting aeroplane. The German shore batteries opened fire at 3.44 p.m., but no enemy aircraft were up, and their shooting was unusually erratic. The firing was witnessed from the *Broke* by the Vice-Admiral. The results obtained were the destruction of a valuable machine shop and further damage to the floating dock.

Before the year ended two more bombardments were carried out by the monitor on day patrol. On October 20 all conditions were favourable for the *Marshal Soult*, but after two rounds firing had to be abandoned on account of jamming by one of our own W/T stations engaged in exercises.[4] The *Marshal Soult* made another attempt on the following day (October 21). She opened fire at 11.30 a.m., but only one spot had been recorded when the spotting aeroplane was attacked by six enemy aircraft and her observer wounded and W/T put out of action. The enemy were driven off and the second spotting aeroplane took on.

[1] A.D.P. to Sec. Adty. 646 of 23.9.17. There were a destroyer and a submarine in the floating dock, but they were afterwards got out. ("The Dover Patrol," 105.)

[2] No bombardment of Ostend had been carried out by the ships for a week previous to this date.

[3] Commodore, Dunkirk, to A.D.P. (1010), 24.9.17.

[4] V.A.D.P.'s Report No. 3439/C/97, 25.10.17. But Report by Commodore, Dunkirk, C/97/A, says that aeroplane spotting was prevented by the enemy's smoke screen.

Erebus torpedoed by Central Boat Oct 28 1917

Nineteen rounds in all were fired by the *Marshal Soult*, but the German smoke screens were so effective that the aeroplane was unable to observe, and firing was stopped at about 11.45 a.m. The shore batteries now opened fire on the *Marshal Soult*, but all shots fell a long way short of the monitor's smoke screen. It appeared from the aerial photographs taken subsequently that one of the *Marshal Soult's* shells hit and destroyed the magazine of an A.A. battery at Ostend.

During November the weather precluded any bombardments. On December 19 the *Erebus* bombarded Ostend, but without result, owing to the failure of the spotting aeroplane.

This ended the bombardment of the Belgian Coast for the year 1917, the close of which saw also the termination of Vice-Admiral Bacon's tenure of command. The principal results achieved by the bombardments were in compelling the Germans to abandon, or at least very much to restrict, the use of Ostend as a destroyer station and repair base, limiting his use of Zeebrugge, and driving him up to Bruges.[1]

CHAPTER V.

BOMBARDMENTS, 1918.

28. Admiral Keyes assumes Command of the Dover Patrol.—Rear-Admiral Roger J. B. Keyes was appointed R.-A., Dover Patrol, on January 1, 1918, in succession to Vice-Admiral Bacon,[2] and was granted the acting rank of Vice-Admiral from that date, and while holding the appointments of Admiral Commanding Dover Patrol and S.N.O., Dover.[3] Admiral Keyes proceeded to embody in a memorandum the experience gained during three and a half years of bombardment both on the Belgian coast and in Gallipoli.[4]

Three distinct types of firing were provided for. The first was when several monitors took part, in which case separate operation orders would be issued. The second type was a firing by the monitor or monitors on patrol—the familiar "Operation

[1] "The Dover Patrol," 107, and R.N.A.S. and Intelligence Reports.
[2] Admiralty to V.-A., Dover, 650, 28.12.17.
[3] Admiralty to Admiral, Dover, 681, 31.12.17.
[4] "Dover Patrol Bombarding Instructions and Spotting Code" (referred to as "B.I. and S.C."), No. 219, 28.4.18, in Dover Papers 46/19. It was ordered to be brought into force on May 1, 1918, but the Bombarding Instructions were already in print in March, 1918. It superseded "Standing Orders for Operations on Belgian Coast, 1916" (012 of 1.1.16). It had apparently been Admiral Bacon's intention to supersede these latter orders by a fresh set entitled "Orders for Operations on the Belgian Coast" (C/97, 1.12.17). These exist in the draft form in which they were sent to Admiralty for approval, but were not printed or issued. "B.I. and S.C.," issued by Admiral Keyes, embodies with little alteration much of Admiral Bacon's draft.

B.O."—which was to be carried out whenever ordered (no longer at the monitor's discretion) and the weather was suitable. The procedure was as in the previous year. The third was a firing to assist the troops ashore, which was to be carried out whenever asked for.[1]

During the first half of the year experimental firings for calibration and the testing of guns and mountings were usually carried out at enemy batteries, works, etc., but in testing for breech mechanism on June 1 with the Gare Maritime (the usual location of shipping) at Ostend as target, the *Marshal Soult* was accurately fired on by the shore batteries, and thereafter orders were given that experimental firings were to take place at Area B[2] and not at Ostend or the forts, to prevent the inference that the enemy had driven the monitors off.

The enemy shore batteries were now making good shooting at ranges up to 39,000 yds., but Admiral Keyes viewed disfavourably the sacrifice of accuracy entailed when the monitors fired under weigh, and other means had to be adopted to reduce the chances of their being hit, the principal one being the smoke screen. As it was not possible to gain more than an approximate knowledge of the enemy's minefields, minesweepers were usually to accompany the monitors; and submarine attack was guarded against by a destroyer patrol and the laying of explosive nets. The latter, however, were very soon found by Admiral Keyes to be useless as a defence against submarine attack, and they were ignored both by the enemy and by ourselves, and although drifters were always out ostensibly to repair the nets, they were really engaged in covering other operations, such as fixing buoys for "Z.O." operation. Admiral Bacon's experience had been to the effect that the enemy's defensive tactics of shrouding the target by smoke screens constituted the chief difficulty to be overcome in carrying out a successful bombardment. The enemy had placed braziers around Ostend and on the Estacade, in such positions as to shroud the target in any wind, and these he lighted directly the first shot was fired. Admiral Keyes

[1] These three types of firing had been provided for in Admiral Bacon's "Orders for Operations on the Belgian Coast" (C/97). *See* Note 4, p. 50.
[2] Near Westende. In the local Appendix to "B.I.S.C." a number of targets were specified and the latitude and longitude of the centre of the target were given, together with an "Indicating Letter" for each target. There were four areas—A, B, C, D—upon which fire could be concentrated at the request of the Army (emergency bombardment), and their latitude and longitude seem to have been changed slightly from time to time. On July 9, 1918, they were as follows:—

Area A—51° 10′ 5″ N.; 2° 46′ 8″ E.
,, B—51° 10′ 18″ N.; 2° 46′ 41″ E.
,, C—51° 10′ 42″ N.; 2° 47′ 43″ E.
,, D—51° 11′ 6″ N.; 2° 49′ 20″ E.

The end of the Eastern Estacade at Ostend was used as ranging target for northerly wind, and the centre of Parc Marie Henriette, Ostend, as ranging target for southerly wind. At Zeebrugge, No. 2 shed on the Mole was used as ranging target.

emphasised the necessity of establishing hitting before the enemy smoke screen was put up. It was important that the enemy should gain no inkling through our preliminary W/T signalling that a bombardment was about to be carried out.

29. German Seaward Defences.[3]—The German seaward defences of the Primary Armament now comprised the following batteries :—

(*a*) On fixed mountings :—

Leugenboom (Pommern), one 15 in.
Tirpitz, four 11 in., range 35,000 yds.
Hindenburg, four 11 in., range 15,300 yds., very old and seldom fired.[2]
Jacobynessen (Deutschland), four 15 in., range 43,750 yds.
Grossen (Groden), four 11 in. howitzers.
Kaiser Wilhelm II, four 12 in., range 41,000 yds.

(*b*) On special railway mountings :—

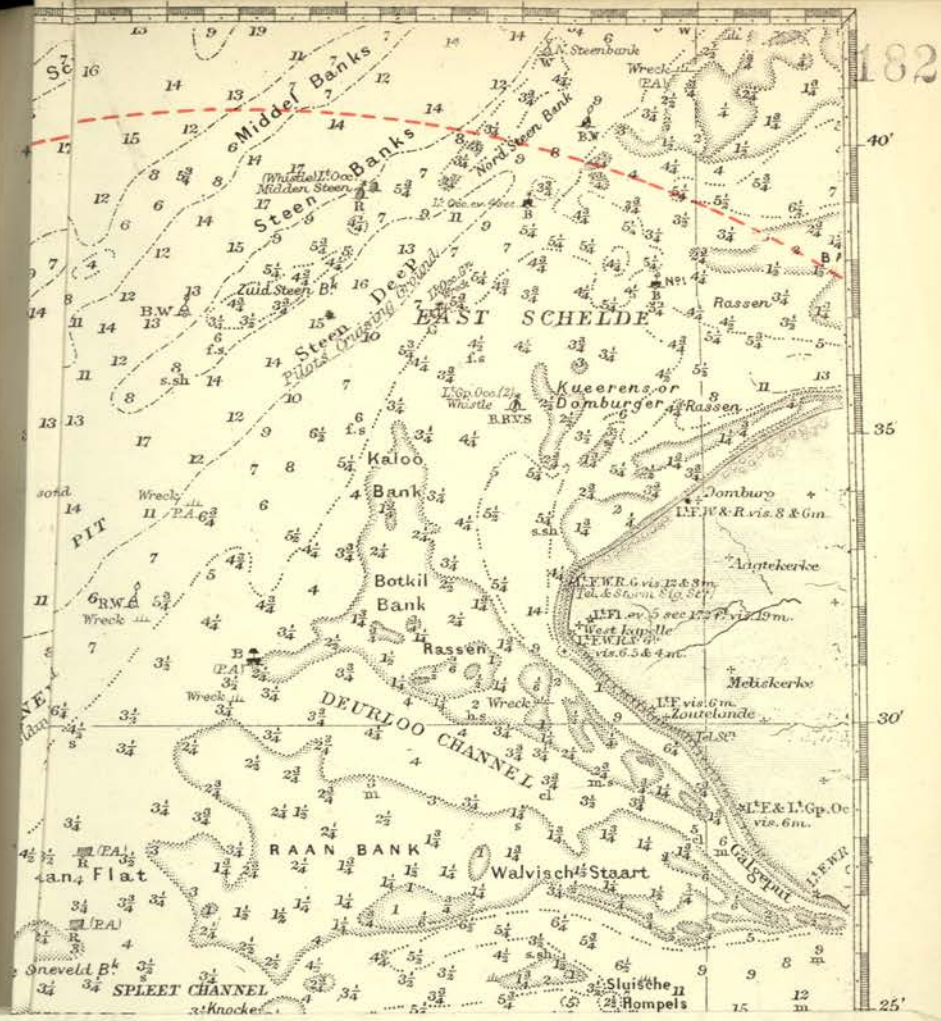
Turkijen (Preussen), four 11 in., range 30,350 yds. (under construction).
De Haan (Hannover), four 11 in., no guns mounted, possibly an alternative position for guns of Turkijen Battery.
Donkerklok (Hessen), four 11 in., range 39,000 yds. (?).
Het Zoute (Braunschweig), four 11 in., no guns mounted, possibly an alternative position for guns of Donkerklok Battery.

It was reported that the two easterly guns of De Haan Battery were in position in July, 1918; the battery was not completed before the Germans evacuated the coast, but possibly two of the guns from Turkijen had been moved there. An unnamed battery near Blankenberghe opened fire on *Erebus* on January 19, 1918; this was probably Donkerklok. All these batteries were equipped for indirect laying only.

30. Improvements in Technical Methods.[3]—For more than three years effective bombardment of the Belgian coast had been hampered by the following causes :—

(*a*) The relative positions of ship and target were not known.
(*b*) No appliances existed for accurately laying the guns when out of sight of land and fixing the ship's position in these circumstances.
(*c*) Inadequate charts precluded the full use of aeroplane reconnaissance to determine accurately the positions of enemy works on shore.
(*d*) The existing charts were inaccurate, consequently no standard ranges existed for calculating gun corrections.

[1] *See* Plan II and C.B. 1524.
[2] On May 28 *Marshal Soult* reported that Hindenburg Battery fired at her at a range of 35,000 yds., but this was probably an error. Tirpitz Battery was firing at the same time.
[3] *See* C.B. 1515 (12). Technical History and Index (T.H.12).



PLAN II.
GERMAN PRIMARY BATTERIES
FOR
SEAWARD DEFENCE
OF THE
BELGIAN COAST.
1918

and area covered by their fire.

Compiled from M.04815/18, "Latitudes and Longitudes of enemy batteries, etc," and C.B.1524, "Report of Committee appointed to examine the German Defences on the Belgian Coast."

Part of Admiralty Chart No.1406. (23rd August 1920.)

Kaiser Wilhelm II 41,000[x] Het Zoute (Braunschweig) (No guns yet in place, 10.7.18. Possibly an alternative position for guns of Hessen Battery.)

Grossen (Groden) ? 32,000[x]

Donkerklok (Hessen) 39,000[x] (?)

De Haan (Hannover) (under construction 19.10.18 Possibly an alternative position for guns of Turkijen Battery.)

Jacobynessen (Deutschland) 43,750[x]

Turkijen (Preussen) 30,350[x] (under construction)

Hindenburg, 15,300[x] (Very old, seldom fired)

Tirpitz, 35,000[x]

Leugenboom (Pommern) ? 38,700[x]

Hydrographic Department, Admiralty, 1921.

Longitude East from Greenwich

Previous to 1918, when Admiral Keyes was appointed to the Dover Command, the only charts used in bombarding were the small-scale navigational charts of the coast, which showed no detail inland of the coast. The position of the monitors was only given approximately in this system, the guns being spotted on to the target by aircraft. Valuable time was thus wasted and opportunity was given to the enemy to shroud the target with a smoke screen before effective fire had been opened upon it.

In 1917 a re-charting of the Belgian coast was commenced by the Hydrographic Surveying Officers on the Staff of the V.-A., Dover Patrol,[1] and new large-scale charts became available early in 1918. But the following disadvantages manifested themselves in connection with the new charts :—

(*a*) The long ranges at which bombardments were carried out (in order to obtain the greatest angle of descent upon targets which were for the most part horizontal) rendered " scaling off " of distances and bearings difficult and inaccurate owing to distortion.

(*b*) The chart was too big for practical purposes, but was invaluable as a reference whereby to obtain latitude and longitude of enemy works.

(*c*) The new charts did not materially assist in accurately fixing the positions of the bombarding ships.

Several complicated methods of remedying the first difficulty were proposed, but nothing practical was done until in 1918 the Hydrographic Surveying Officers on Admiral Keyes' Staff produced a diagram by means of which, given the position of the bombarding monitor and the latitude and longitude of the target, the range and bearing could be determined without reference to the chart.[2] Already Commander Altham, of the *General Craufurd*, had devised a Gyro-Director by which the guns could be laid on any true bearing, without the necessity of aiming marks, thus enabling the monitors to fire at night and while under weigh out of sight of land. To obviate the difficulty in (*b*), a Table of Latitudes and Longitudes of Enemy Batteries deduced from aeroplane photographs was supplied[3]; and to fix accurately the positions of the bombarding ships sub-aqueous sound-ranging was introduced.[4]

For the purpose of sub-aqueous sound-ranging, hydrophones were laid off the English coast in positions of which the latitude and longitude were accurately determined. Since the positions given by this method were in latitude and longitude, the co-ordination of English latitude and longitude with French and

[1] Capt. Henry P. Douglas and Lieut.-Commdr. Francis E. B. Haselfoot.
[2] Known as Capt. Douglas' Diagram (H.232). *See* T.H.12.
[3] M.04315/18.
[4] The first trials were carried out on May 19, 1918.

Belgian was essential ; and this important work was carried out by the Hydrographic Officers at Dover. The method of ranging was as follows :—

Depth charges were dropped by patrol craft at the positions of certain firing buoys,[1] the explosions were fixed by the hydrophones on the English coast and referred to the Admiral's Office at Dover, and the positions of the firing buoys were sent by telephone to Dunkirk and then by W/T to the ships on patrol. The adoption of sub-aqueous sound-ranging obviated the employment of fixes by shore bearings or dead reckoning runs, both of which were unreliable, the former for the reason that the shore was seldom visible at the range at which firing was carried out, and the latter because in the variable depths of water off the Belgian coast dead reckoning runs were unreliable, even if " taut wire " measuring gear was employed. Under the new conditions the firing monitor had merely to drop her anchor at or near the buoy and commence firing, having, while on passage, worked out the range and bearing of the target by the new diagram.

Detailed instructions were issued for the correction of the gun range as measured—the familiar " error of the day."[2] Loss of muzzle velocity was no longer to be calculated by the number of equivalent full charges fired by each individual gun, but by the wear of the bore, which was to be measured after every firing. Diagrams were provided to enable the necessary correction to be ascertained for wind up and down and across the range, and the thermometer correction was taken from the mean reading for the various air strata which the projectile would traverse, as furnished by the station near Dunkirk. Magazine temperatures were ordered to be attended to carefully as these were the source of a large possible error ; they were to be kept as nearly constant as possible for at least 24 hours previous to bombardment.

In 1916 and 1917 the grid had invariably been employed in firing and spotting. In the latter part of 1917, however, the grid was no longer in use by the land forces, and few of the " land front " observers who were continually replacing the pilots working with the monitors had any knowledge of the grid, though they were familiar with the system of clock spotting used universally by the Army. Admiral Keyes, therefore, adopted the Artillery Clock and Deflection Indicator,[2] and it was issued to the ships on the Belgian coast in May, 1918.

31. Bombardments by Monitors on Barrage Patrol.—The first bombardment of the year by the monitors on the Barrage Patrol was carried out by the *Erebus* on January 19, when she fired 24 rounds at Ostend dockyard, commencing at 3.33 p.m.

[1] Two or four depth charges would be dropped around the buoy, at distances of 100 yds.–200yds., and the mean of the hydrophone readings taken.

[2] *See* T.H.12 and B.I.S.C.

Aeroplane spotting was rendered difficult by the enemy smoke screen which was put up immediately the first shot was fired and by the dummy bursts which he appeared to be using. The bombardment was marked by the fact that the enemy for the first time deliberately jammed the spotting aeroplane's W/T, using for the purpose an English Spark W/T set. Interference of this sort was not unexpected by us, though it had never previously been experienced.

Despite the difficulty of spotting, the bombardment was not without effect, both the floating docks being damaged and a submarine shelter partially wrecked.[1] The enemy's shore batteries opened fire, but no spotting aeroplanes were up and his firing was very wild.

W/T jamming of enemy spotting aircraft on our part was resorted to by the *Terror* a month later. On February 18 this monitor bombarded Ostend, *M.25* acting as aiming mark ; but she was forced to stop after firing nine rounds owing to difficulties with the long projectiles which she was using and mechanical troubles in the turret. The enemy's shore batteries replied five minutes after the *Terror* opened fire. The wind was dead foul and the *Terror* was unable to use a smoke screen. After a few minutes a German aeroplane, which was not, however, sighted, commenced spotting, and the enemy's fire, which up till then had been wild, began to improve. The *Terror* was under weigh by now. Jamming the enemy's W/T spotting, and covered by a smoke screen made by the motor launches, she retired unhit.

In the early morning of March 21 a force of 12 hostile destroyers and six torpedo boats bombarded Dunkirk, Bray Dunes and La Panne. The *Botha, Morris,* and the French destroyers *Capitaine Mehl, Magon,* and *Bouclier* slipped their cables and chased. Two enemy torpedo boats were sunk, and a destroyer was torpedoed by *C.M.B.20* but was got into harbour.[2] The *Botha* was torpedoed, but she reached harbour safely in tow of the *Morris.* This brilliant counter-attack was followed up by the bombardment of Ostend by the *Terror* in the afternoon. She opened fire at 3.9 p.m. and continued until 3.34 p.m., firing 38 rounds. The enemy put up smoke screens at once, and spots could only be made at intervals. The shore batteries opened fire five minutes after the *Terror's* first round, and continued a very heavy fire until 1537, over 60 rounds being actually observed. The enemy's fire was more accurate than usual, though nothing except a few shell splinters hit the *Terror,* and it is probable that on this day of high visibility his aircraft were able to get in a few spots, although our air patrols kept them

[1] Summary of Patrol Work for January, 1918, C/97/A.

[2] One enemy destroyer was also reported to have been sunk, but this was afterwards proved to be incorrect.

from moving directly over the Fleet. The bombardment by the *Terror* resulted in considerable damage being caused to the Gare Maritime.

Operation "B.O." was carried out on several occasions during the year, but without bringing to light any fresh features.

32. Emergency Bombardments.—The Bombarding Instructions and Spotting Code provided for the emergency bombardment of four different areas at the request of the Army, the latitude and longitude of the centre of each area being specified.[1] These areas, which were lettered A, B, C, D, lay between Westende and Middelkerke. The operation was known as Operation "B.B."

On May 3 the *Prince Eugene* and *Sir John Moore* were organised to carry out operations "B.O.," when at 11 a.m. they received the signal to carry out operation "B.B." The ships returned to the Ratel position, and the *Prince Eugene* anchored in 51° 14′ 55″ N., 2° 32′ 40″ E. by buoy bearings, with the *Sir John Moore* one mile S.W. of her. The *Prince Eugene* opened fire at 2 p.m. at Area B, and the two ships fired at 20 second intervals until 2.40 p.m., when they weighed and returned, having fired 17 and 13 rounds respectively under cover of a smoke screen, being spotted for by 202 Squadron, R.A.F. The shore batteries opened fire on them, but all shots were short. The bombardment was chiefly for calibration purposes.

The monitors were liable to be called upon by the Army at any time for a bombardment of any of the targets or areas specified in B.I.S.C.

33. Operation "B.W."[2]—A number of bombardments of the enemy's coast batteries were carried out during the year 1918. On the night of April 17-18 the *Erebus, Terror, Prince Eugene,* and *Marshal Soult* bombarded the Aachen, Antwerpen, Baesler, and Cecilia Batteries. These batteries, which mounted four 6-in. (15 cm.) guns each (except Antwerpen, which was armed with five 4-in. (10·5 cm.)), were situated on the coast between Middelkerke and Ostend, and, like the majority of the German secondary batteries on the coast, they were sited for direct fire. The monitors left harbour at about 9 p.m. on the 17th in company with the smoke M.L.s. They arrived at their firing positions and anchored shortly after midnight[3] and opened fire without delay,[4] aiming lights being provided by the small monitors.[5]

[1] *See* Note on p. 51.

[2] The orders, which were included in Secret Memo. 0/51 of 15.4.18, are not forthcoming.

[3] *Prince Eugene's* position—51° 12′ 42″ N., 2° 35′ 40″ E.

[4] *Erebus* (?), *Terror,* 12.4 a.m., *Prince Eugene,* 12.9 a.m., *Marshal Soult,* 12.5 a.m.

[5] *Prince Eugene* preferred to use Oost Dunkerque searchlight.

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One hundred rounds in all were fired,[1] and about 12.30 a.m. the monitors ceased firing and withdrew. The enemy batteries replied to the fire blindly, and none of the ships was hit. Leugenboom Battery retaliated by firing six rounds into Dunkirk, but without causing any material damage.

34. "Z.O." Operation, April 22–23.—Towards the end of March, 1918, the preparations and training for the famous "Zeebrugge Raid"[2] approached their final stage. The operation was known as "Z.O." Operation, and the co-operation of the monitors of the Dover Patrol was ordered to distract the attention of the enemy from the main operations.[3]

The first attempt to carry out the operations was made on the night of April 11-12. In accordance with the programme the *Prince Eugene, Marshal Soult, Lord Clive,* and *General Craufurd* proceeded to their bombardment positions and fired 50 rounds of 15 in. and 12 in. and 24 rounds of 6 in. before the operation was cancelled at 1.10 a.m. on the 12th owing to foul wind. One C.M.B. was lost during the night owing to collision, and a second failed to return to harbour. Squadrons 214 and 215 of the 7th Brigade R.A.F. carried out an intense bombing of the batteries at Ostend, Zeebrugge Mole, batteries east of Zeebrugge, and the coastal batteries from Ostend to Blankenberghe. The monitors sailed again at 4 p.m. on April 13 for "Z.O." Operation, but were recalled at 5.25 p.m. owing to the north-east wind and sea.

The operation was ordered for the third time on the night of April 22-23. The bombarding forces were divided into two groups for the bombardment of Zeebrugge and Ostend respectively.

The Zeebrugge force consisted of the *Erebus, Terror,* and the *Termagant, Truculent,* and *Manly* under the orders of Captain Charles S. Wills, C.M.G., D.S.O., of the *Erebus.* The bombardment was divided into two firing periods; the first period was from X time (the time of the main force passing Position G[4]) plus 40 minutes to X time plus 55 minutes, the target being the Zeebrugge lock gates. The time for commencing the second firing period was X time plus one hour and five minutes, the targets being Knocke battery and the other batteries between it and Zeebrugge. Firing was to be continued with short intervals throughout the operation or until a W/T signal to cease firing was received. If no signal was received the monitors were to be out of range of the enemy batteries by dawn. The firing position of the

April 22-23
1918

[1] *Erebus,* 15 15-in., *Terror,* 36 15-in., *Prince Eugene,* 21 12-in., *Marshal Soult,* 28 15-in.

[2] The sealing up of the Bruges ship canal and docks by blocking the entrances to Zeebrugge and Ostend harbours.

[3] C.B. 01459, "Reports on Zeebrugge and Ostend Operations," pp. 1–2. The orders for the bombarding forces and the reports are given in Encl. 15-21.

[4] *See* C.B. 01459, Chart, p. 38.

force was 53° 34′ N., 3° 18′ E., in close proximity to a line of British mines extending from 51° 34′ 54″ N., 3° 11′ 22″ E., to 51° 31′ 45″ N., 3° 18′ E., so that great care in approaching it had to be exercised. The weather was very thick, with drizzling rain, and the ships got set to the southward and were late in anchoring in their bombarding positions. The delay prevented fire being opened until the second period. At 11.35 p.m. the monitors opened fire on Knocke Battery, using as point of aim a Light Buoy off the Dutch coast. It was not until 1.20 a.m., when the ships were just commencing their final series, that the shore batteries opened fire on them, though without placing any shell within 1,000 yds. The weather was too thick for shore observers to have sighted the monitors' gun flashes, but it is possible the enemy were using sound-ranging. At 1.33 a.m., each ship having fired some 64 rounds, they ceased firing and proceeded to take up patrolling positions to cover the retirement of the main force. Aerial photographs taken subsequently showed the good effect of the monitors' bombardment.

The Ostend Bombarding Force consisted of the monitors *Marshal Soult, General Craufurd, Prince Eugene,* and *Lord Clive;* the smaller monitors *M.*24 and *M.*26; the *Mentor, Lightfoot,* and *Zubian,* and the French destroyers *Capitaine Mehl, Francis Garnier, Roux,* and *Bouclier.* The *Prince Eugene* and *Lord Clive* anchored in their bombarding positions at 10.20 p.m., and at 11.10 p.m. commenced bombardment of Tirpitz Battery and Aachen Battery—Raversyde, firing at the former with 12-in. and the latter with their 6-in. guns. The estimated range to hit the target was used throughout, the error of the guns themselves being used to create the spread. Lateral spread was arranged by altering the deflection in increments of five knots between the limits of 20 right and left. Shortly after the bombardment commenced a single enemy gun of large calibre opened fire at the monitors and placed several shells between them and the smoke screen. After a short time, during which none of the ships was hit, the enemy's fire shifted to a position wide of the monitors, and ceased at 11.40 p.m. At about 1 a.m. on the 23rd the monitors ceased firing and proceeded to their patrol positions to cover the retirement of the main force.

The *Marshal Soult* left the Roads at 7.15 p.m. and anchored by the stern at 10.35 p.m., and at the scheduled time (1.10 p.m.) commenced the bombardment of Jacobynessen Battery, using *M.*24 as aiming light. At 11.37 p.m., after firing 23 rounds, she shifted to Baesler and Cecilia Batteries and at once the fire of the shore batteries, which up till now had been wide of the ship, became rapid and more accurate, the *Marshal Soult* being repeatedly straddled by salvos, chiefly of 6-in. shrapnel. Twice shells burst overhead, spattering the decks with splinters, but all the men were under cover and there were no casualties. At

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1 a.m. on the 23rd, having fired 64 rounds of 15 in. at the Baesler and Cecilia Batteries, the *Marshal Soult* ceased firing, weighed and proceeded on patrol.

The *General Craufurd* had been detailed to bombard Hindenburg Battery Area and afterwards Aachen and Antwerpen from a position near Middelkerke Buoy. She opened fire at 11.35 p.m., and the enemy batteries soon replied. The range of Antwerpen Battery was only 14,400 yds., but although the enemy's firing was good, the ship, which was efficiently screened by the *M.L.*249, escaped being hit. The enemy appeared to be using sound-ranging, in which the fire of the *General Craufurd's* 6-in. guns assisted him, but it was useful to have these guns for use during the interval of reloading the turret gun-house with shell.

The bombardment by the monitors off Ostend was reported to have been undoubtedly useful in keeping down the fire of the enemy batteries directed at the blocking force.

35. Bombardment of Enemy Salvage Craft at Zeebrugge.—It appeared from air reconnaissances that Zeebrugge harbour had been effectually blocked on the night of April 22-23, and damage had been caused to the lock gates. A number of craft were imprisoned in the harbour and Bruges-Ostend Canal; and towards the end of May bombardment by the monitors was ordered of the enemy dredgers and salvage craft, which were working to free the port of Zeebrugge. High visibility and bad weather in turn delayed the operations, and it was not until June 9 that it was carried out. At 1 p.m. on that day the *Terror* and *Marshal Soult* opened fire on the salvage craft at a range of 27,000 yds. The bombardment seems to have come as a complete surprise to the enemy, and it was not until 12 rounds had been fired by the monitors that the enemy opened fire. His shooting with large calibre guns was good, but although the monitors were straddled they remained unhit. The enemy also put down a barrage of lesser calibre shells, probably 8 in., between the monitors and the shore, as if fearful of C.M.B. attack on the salvage craft. The monitors fired 50 rounds before ceasing fire, of which the spotting aeroplane succeeded in reporting 20.

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36. Operation "M.C."[1]—For a long time the duties of the small monitors had been little other than to provide movable aiming marks for the large monitors, though since the introduction by Admiral Keyes of submarine sound-ranging and the gyro-director, they were no longer required for these duties. During May a scheme was drawn up for a combined bombardment by small monitors and French naval coast batteries of the Westende

[1] Orders numbered C/61, dated May 14, 1918.

Raversyde 6-in. batteries, and a C.M.B. raid on the torpedo craft which were reported to be in the habit of lying close inshore to the east and west of Ostend when the port was on the alert.

The operation was arranged to take place at low water, when the enemy destroyers would be more likely to be inshore and at anchor, and when an attack on the monitors was unlikely to take place. In case Tirpitz Battery should open fire on the monitors the R.M.A. siege guns were to open fire on it if called upon. A division of destroyers was to be out in the approaches to Dunkirk during the firing, which it was essential should take place during weather suitable for the C.M.B.s. The firing positions of the monitors were to be off the west end of Nieuport Road inshore from West Deep, the positions being fixed by angles to a line of our searchlights on shore, the positions of which had been accurately fixed,[1] and aiming was indirect by Oost Dunkerque searchlight until direct fire by the enemy gun flashes should become possible. The monitors were to spot their own fall of shot, firing 20 rounds each independently at the approximate rate of one round every 45 seconds.

The night of May 14-15 was very favourable for the operation; there was a light W.S.W. wind, a smooth sea, and a moon four days old setting at midnight. The monitors *M.*26,[2] *M.*27 and *M.*23 began to leave harbour at 9.30 p.m., just as air raids commenced all along the coast from Calais to Ostend. Fire was opened at the zero hour at 11.45 p.m., and continued for 15 minutes, 51 rounds being fired.[3] The enemy replied feebly, and their gun flashes could not be detected well enough to aim at, there being so many lights along the coast at the time. Little result other than keeping the enemy on the alert accrued from the operation, for the C.M.B.s[4] found no enemy craft to attack.

The operation was repeated on the night of May 16-17 between the hours of midnight and 12.15 a.m., the same ships taking part, but again without result, no enemy torpedo craft being found, though the C.M.B.s proceeded as far as Zeebrugge.

37. 18-in. Guns Mounted in the Monitors.—After the conversion of the *Furious* to an aircraft ship her two 18-in. guns, and a third as spare, became available, and Admiral Bacon had been anxious to make use of them on the Belgian coast. His suggestion was that a mounting should be constructed which was capable both of being fitted in a monitor and also being landed on shore, in order that the guns might be employed in the dual role of ships' guns and land guns. Such mountings were actually constructed and were known as 15-in. B.C.D. mountings, the guns having

[1] The position given in the orders, viz., 50° 8′ 0″ N., 2° 37′ 30″ E., is obviously a misprint.
[2] Lieut.-Cmmdr. T. W. Green, Senior Officer.
[3] *M.*26, 20; *M.*27, 18; *M.*23, 13.
[4] Senior Officer, Lieut. F. C. Harrison.

always been known, for secrecy's sake, as 15-in. B. The first intention was to fit the *General Wolfe*, *Lord Clive*, and *Prince Eugene* with one gun each; but the time occupied in fitting the two former monitors was so long that the *Prince Eugene* could not be spared, and the third gun was never mounted. With 45° of elevation these guns were capable of an enormous range, though in practice their extreme range was considered to be 37,000 yds.

The *General Wolfe* was ready on August 23, on which day she calibrated at long range on the calibration range between Gravelines and Dunkirk, the practice of calibrating on enemy positions being at this time resorted to only as part of an operation. The *Lord Clive* did not arrive at Dunkirk with her 18-in. gun until October 13, just in time to take part in the final operation carried out by the monitors on the Belgian coast during the war.

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During July two more guns capable of firing at enormous ranges had become available on the arrival of the *Gorgon*[1] on the Belgian coast. The *Gorgon* was a coast defence ship of 4,825 tons, which, under the name of *Nidaros*, had been building for the Norwegian Navy at the outbreak of war, in a private yard in the United Kingdom. Her two 9·4-in. guns had been lined up to take 9·2-in. projectiles, and by giving the guns 40° of elevation and using supercharges and 8-calibre head projectiles with false caps, a range of 39,000 yds. could be obtained under favourable conditions, though, as in the case of the 18-in. guns, firing was never carried out at more than 37,000 yds.

38. Operations in connection with the Advance in Flanders.—The Battle of Flanders commenced on September 28, 1918, and for a month the ships on the Belgian coast co-operated with their fire.

The commencement of the operations in conjunction with the Belgian Army synchronised with the opening of the offensive by the Army. The first operation, which was entitled "Operation B.O.23,"[2] was to consist of two parts—a night bombardment and a day bombardment. The object during the night was to keep the enemy as long as possible in doubt as to whether a landing on the coast was intended, and so to prevent his forces being used elsewhere. This was to be effected by firing on a sector of the coast between Nieuport and Ostend, and also on Zeebrugge, whilst vessels made smoke screens off shore if the weather permitted. In view of the length of the bombardments the utmost economy was enjoined in the use of smoke. The firing on the following day was designed to destroy the enemy's communications, cut roads and railways, and generally harass his movements between Nieuport, Ostend and inland. From

[1] Comdr. Charles A. Scott. [2] Orders dated September 26, 1918.

daylight until noon firing was to be intensive as ammunition supplies would permit, easing off during the afternoon. Air spotting was to be used when possible, but firing was not to stop if air spotting was not available.

The naval forces were organised in three divisions as follows :—

Division I.—Terror (Commander), *Erebus*, 6 destroyers, 8 M.L's.

Division II.—Prince Eugene (Flag), *General Craufurd, Sir John Moore*, 6 British destroyers, 8 M.L.s.

Division III.—General Wolfe, (S.O.),[1] *Gorgon*, 4 French destroyers, 8 M.L.s.

Division I was to proceed to position 51° 26′ 20″ N., 2° 53′ 38″ E., and fire 25 rounds per monitor at Zeebrugge, the rate of fire being one round every 90 seconds. The three monitors of Division II were to fire at Aachen, Antwerpen, and Baesler batteries respectively from West Deep, co-operating with their 6-in. secondary armaments with the French coastal batteries firing on the German 6-in. batteries at Westende. The small monitors *M*.26 and *M*.27 were also to bombard these batteries from a position slightly further to the eastward, and the Flanders batteries also were in action during the night. The positions of the bombarding ships were fixed by angles taken to our searchlights on shore.

The bombardment by the monitors of Divisions I and II commenced at 2.30 a.m. on September 28, and continued for about an hour. At daylight (about 5.30 a.m.) the monitors took up the following positions and commenced firing at their targets[2] :—

Terror, Erebus, near Zuidcoote Pass, to fire at the Slype howitzers.

Prince Eugene, General Craufurd, Sir John Moore, Potje, to fire on areas A, B, and C.[3]

Gorgon, General Wolfe, No. 2 Buoy, Outer Ratel, to fire at Snaeskerke.

Fire was continued for six hours at the rate of one round per ship every three minutes, after which (from about 11.30 a.m.) the intensity of fire was reduced to one-third. About 5.30 p.m. the bombardment ceased. The weather was bad, but spotting was possible at times, and the shooting was reported to be very good. No ships were hit by the enemy shore batteries. The harassing of the enemy by bombardment and the firing of star shells was continued during the night of September 28-29 by a

[1] Now mounting an 18-in. gun.

[2] The only account of these and the subsequent operations in conjunction with the Army which is forthcoming is comprised in the Dover Patrol, Weekly Summaries, in Dover Papers 46/14.

[3] Area A, 51° 9′ 50″ N., 2° 46′ 10″ E. ; Area B, 51° 10′ 10″ N., 2° 46′ 55″ E.; Area C, 51° 10′ 33″ N., 2° 47′ 44″ E.

force of destroyers[1] in lieu of the C.M.B.s, who were prevented by the weather from carrying out their part of the programme ; and a heavy aerial bombardment was carried out by Nos. 38 and 214 Squadrons on the Ostend-Bruges-Thourout Railway and vicinity. The *General Wolfe* and *Gorgon* bombarded Snaeskerke on the following morning (September 29) with good results.[2] Owing to the weather changing suddenly for the worse, spotting was rendered impossible and bombardment ceased after 18 rounds had been fired.[3]

During the next fortnight no extensive bombardments of the Belgian coast were undertaken, though on several days firings were carried out at certain targets by one, two, or three ships, in co-operation with the Belgian Army. Air reconnaissances on October 5 reported a single T.B. and the s.s. *Brussels*[4] at Zeebrugge and no torpedo craft at Ostend, whilst on October 9 there were no torpedo craft either at Zeebrugge or Ostend, though it was not yet known whether the enemy had abandoned altogether the use of these ports, as the cloudy weather prevented reconnaissance of the Bruges-Ostend Canal.

39. Capture of Ostend and Zeebrugge.[5]—On October 14 the co-operation of all the large monitors was again required in connection with the advance of the British, Belgian and French Armies. Commencing at 5.32 a.m. on that day an hour's intensive bombardment (one round per ship every 90 seconds) was carried out against various objectives in the area between Ostend and Nieuport, followed by one round per ship every six minutes for an hour. The monitors were organised in three divisions as follows :—

Division I.—Terror, Erebus, firing at Slype Bridge, range 27,000 yd., from position 51° 9′ 20″ N., 2° 28′ 44″ E. (west of Smal Bank).

Division II.—(*a*) *Prince Eugene, General Craufurd, Sir John Moore*, firing at Areas A, B, and C,[6] ranges 19,600 to 21,800 yds. from Potje.

(*b*) *Gorgon*, firing at Area D,[7] range 26,000 yds. from Zuidcoote Pass.

Division III.—General Wolfe, Lord Clive,[8] firing at Snaeskerke, range 36,000 yds. from the southern end of the Outer Ratel, firing only when spotting was possible.

[1] *Velox, Broke, Moorsom, Mastiff, Melpomene, Matchless, Morris, Phœbe.*

[2] Operation B.O.24.

[3] *Gorgon* did not fire.

[4] Formerly Capt. Fryatt's ship, now used by the Germans as a Submarine Depôt Ship.

[5] From the Dover Daily Summaries in Dover Papers 46/13 and Dover Patrol, Weekly Summaries, in Dover Papers 46/14. No Operation Orders or Reports are forthcoming.

[6] *See* Note 3, p. 62.

[7] Middelkerke.

[8] *Lord Clive* arrived at Dunkirk on October 13 with her 18-in. gun.

A division of destroyers proceeded up West Deep as far as Westende, firing into that area without drawing the enemy's fire.

The coastal batteries had been in action during the day, and in the afternoon, at the request of the Belgian Headquarters, the *Gorgon*, screened by the *Termagant* (flying the flag of the Vice-Admiral) and two other destroyers, and followed by the *Prince Eugene* and *Sir John Moore*, and motor launches made a reconnaissance through West Deep with a view to ascertaining whether the enemy were still holding the coastal sector in force. When past Nieuport, Tirpitz and all the enemy batteries near Raversyde Bains opened a heavy fire, and the force having achieved its object withdrew under cover of a smoke screen without suffering any damage.

At 2.30 p.m. a force consisting of the *Terror*, *Erebus*, 8 destroyers, 3 small monitors, 4 " P " Boats, 12 M.L.s and 10 minesweepers left Dunkirk and proceeded along the line of the old Belgian coast Net Barrage with the object of causing the enemy to apprehend a landing at Zeebrugge, and thus draw his forces to the coast. It was a clear day, and the force was easily visible to the enemy, who were reported to be returning to Ostend, Zeebrugge, etc. The ships returned at 11 p.m.

This was the last operation carried out by the monitors. On October 17 Ostend and on the 19th Zeebrugge were evacuated by the Germans, after having been in their hands for four years almost to a day.[1]

[1] Zeebrugge and Ostend were occupied by the Germans on October 15, 1914.

PART II.

DOVER RAIDS.

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PART II.

DOVER RAIDS.

CHAPTER I.

THE DESTROYER RAID ON THE STRAITS OF DOVER, OCTOBER 26—27, 1916.

Note on Sources.

This narrative, like those which follow, has been compiled from the Records of the Dover Base. The papers relating to the raid of October 26-27 are in Pack 46/28.

They consist of :—

1. The Vice-Admiral's Report to the Admiralty, dated October 30.
2. The Vice-Admiral's Supplementary Report, dated November 6.
3. Reports from the Captain, Drifter Patrol, Dover, dated October 28.

This includes original reports from :—

H.M.Y. *Ombra*,
H.M. Trawler *H. E. Stroud*,
M.L.s 103, 252,

and the Commanding Officers of the various Drifter Divisions.

4. Reports from the following Torpedo Craft :—

Viking.	*Lawford.*
Mohawk.	*Lance.*
Tartar.	*Lochinvar.*
Cossack.	*Lark.*
Lucifer.	*Zulu.*

P.34.

5. Minutes of Court of Enquiry *re* loss of *Flirt.*
6. Minutes of Court of Enquiry *re* torpedoing of *Nubian.*
7. Minutes of Court of Enquiry *re* conduct of *Laforey's* Division.
8. Minutes of Court of Enquiry *re* conduct of C.O. of H.M. Drifter *Young Crow.*
9. Reports from s.s. *Queen, Jan Breydel* and *St. Denis.*
10. Original Signal Forms.

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The accounts from the various destroyers and auxiliary craft are contradictory and difficult to reconcile, and they should be accepted with caution. The accounts and charts of the raids which were made at Dover at the time were apparently compiled hurriedly and contain a number of contradictions and inaccuracies.

In the following account important items of the original evidence have frequently been disregarded, but where this has been done the fact is mentioned.

1. **General Situation at Dover, October, 1916.**—The forces based on Dover under the command of Vice-Admiral Sir Reginald Bacon, and known as the Dover Patrol, had three principal duties to perform in October, 1916.

In the first place, they had to endeavour to deny the passage of the Straits of Dover to enemy craft, whether surface or submarine, and by so doing to cover the main maritime lines of communication of the British Army in France. The problem was somewhat complicated by the fact that the important short sea routes between Folkestone and Boulogne and between Dover and Calais lay actually within the Straits, and the transports employed on this service, therefore, required to be directly protected by the Dover forces.

The main Channel traffic route as far west as Beachy Head also required to be protected against the activities of any hostile vessels which might succeed in passing the Straits, while the anchorage in the Downs was a particularly vulnerable point. A mass of shipping was always collected there, both in connection with the examination service and on account of traffic regulations; and as the Downs were open to an attack from the northward special measures had to be taken to defend them, apart from any dispositions made to hold the passage of the Straits.

In addition to these tasks the Dover Patrol was required to keep a watch on the enemy's Belgian bases and to harass the Germans by carrying out such operations against them as were possible with the forces available. For these purposes the port of Dunkirk was used as an advanced base and was commanded by a Commodore, who acted under the orders of the Vice-Admiral at Dover.

2. **Net Barrages.**[1]—In the summer of 1916 a barrage of mine nets and deep mines had been laid off the Belgian coast with a view to checking the activities of the German submarines using Belgian ports as bases. This barrage had been watched during the fine weather months by monitors and destroyers, and it was considered by Admiral Bacon to have been sufficiently successful to justify a further extension. It was recognised that during the winter months it would be impossible to maintain

[1] *See* Part IV, " The Dover Barrage," para. 3.

a constant patrol off the enemy's coast on account of the poor sea-keeping qualities of the monitors; but it was hoped to establish a somewhat similar barrage right across the Straits of Dover, though the technical difficulties involved were considerably greater than in the case of the Belgian barrage, owing to the greater depth, the strong tidal streams, and the heavy seas encountered in the Straits.

The form of barrage adopted consisted of wire nets carrying mines, the nets being clipped to a jackstay, which was supported by large mooring-buoys placed at intervals of about 500 yds. The line on which this barrage was laid extended from the south-eastern portion of the Goodwin Sands to the south-western extremity of the Outer Ruytingen Shoal and thence to the eastward in the direction of Dunkirk. The work of fitting the mine nets was commenced on September 16, 1916, and by October 21 the work was completed as far as the Outer Ruytingen Shoal.

The whole length was divided into sections each a mile long, with four buoys in each section, the buoys being distinguished by the number of their section and a serial letter starting from 0A buoy on the edge of the Goodwins; thus 7B buoy was the second buoy in the 7th section. The line of the barrage was marked by light-buoys numbered in a similar way, and these are important as they form convenient points of reference when describing events and movements in the vicinity of the barrage. On October 26, 1916, there were light-buoys at numbers 0A, 4A, 7A, 9A and 11A, as shown on the accompanying chart.[1]

This Cross-Channel Barrage was watched day and night by drifters. These worked in divisions, each commanded by a Lieutenant R.N.R., and were responsible for maintaining the barrage in an efficient condition. They were, however, mostly unarmed, and none was fitted with wireless; they were supported by armed yachts and trawlers, an old destroyer being also detailed to support whenever available.

The remainder of the Dover force, with the exception of any ships stationed at Dunkirk, was fully occupied in escort and patrol duties. The main traffic line from Beachy Head to the Downs was constantly patrolled by torpedo craft and armed trawlers, while the transports employed on the Cross-Channel routes had to be escorted by destroyers as their speed rendered it impossible for auxiliary vessels to perform this duty. These transports only made trips with troops during daylight hours. The defence of the Downs was provided for by stationing a division of destroyers there when an attack by the enemy seemed probable, and they acted as a support to the armed drifters and torpedo boats permanently stationed there.

[1] Plan III. It should be noted that besides the Barrage Buoys there were other numbered buoys marking the old net area. Of these, No. 9, eleven miles S.W. of No. 9A buoy, is the most important in the present connection.

Up to October, 1916, though the Germans had been in occupation of the Belgian coast for two years they had shown no disposition to deliver an attack on the various objectives open to them in the Dover area.

3. News of German Activity.—On October 24 the Admiralty informed Admiral Bacon that a flotilla of destroyers from Germany had arrived at the Belgian ports during the previous night to reinforce the enemy's Flanders flotillas. This intelligence, taken in conjunction with the reports which had been received of armed barges in the Flemish canals and abnormal railway activity at Ostend, seemed to indicate the possibility of an attack on the Belgian coast where the Allied flank at Nieuport could be turned.[1]

The Vice-Admiral did not consider a raid on the Straits probable as the enemy had never hitherto attempted to approach from the northward, and as no troops were transported by night he was of opinion that "no useful military purpose would be served by their entering the Straits."[2]

It was recognised, however, that the shipping in the Downs was a very probable objective for the enemy; and Admiral Bacon, therefore, made his dispositions for the night of October 26-27 on the assumption that the places "which required most safeguarding were the Belgian coast and the Downs."[3]

4. Force Available and Disposition.[4]—To deal with any operations undertaken by the enemy the Vice-Admiral, Dover, was able to dispose of the following torpedo craft:—

Swift. Flotilla leader.
8 "L" Class detached from the Harwich force.
4 Tribal Class armed with 4-in. guns.
3 Tribal Class armed with 12-pdr. guns.
7 30-knotters.
3 P boats.
2 Torpedo Boats.

Of these the two torpedo boats were permanently stationed in the Downs. The Tribals, 30-knotters, and "P" boats performed the routine patrol and escort duties; and the activity of hostile submarines to the westward had recently forced the Vice-Admiral to double both patrols and escorts during daylight hours. This involved an increased strain on the limited number of boats available, and the only opportunity for rest was at night when the patrols were reduced and the vessels not required could spend the night in Dover harbour.

[1] Appendix B1, 2. The information with regard to possible enemy activity was not promulgated at Dover. The Commodore, Dunkirk, was informed.
[2] V.A.s letter of November 6, 1916.
[3] V.A.s letter of November 6, 1916.
[4] *See* Appendix A for details.

Besides the vessels mentioned above, the light cruiser *Attentive* was at Dover, but her boilers were open for cleaning, and night leave was granted to the crew. The light cruiser *Carysfort*, of the Harwich force, was also present at Dover on the night of the 26th-27th. She was waiting for daylight to proceed to Dunkirk; but her fires were banked at two hours' notice.

For the night of October 26 the Vice-Admiral disposed the available ships in accordance with his belief that the Belgian coast and the Downs were the threatened points. Four of the "L" class destroyers (Senior Officer Lieut.-Commdr. A. A. Scott, of the *Lawford*) were stationed in the Downs, where they lay at anchor off Deal, the remaining four under the command of Commander R. A. Hornell, in the *Laforey*, being sent to Dunkirk, where they anchored in the roads about 2200. There they joined the *Swift* and four 30-knotters which were already there.

The traffic route was patrolled by one Tribal destroyer (*Zulu*) and two "P" boats, besides the usual armed trawlers of the auxiliary patrol.

The remaining vessels, including six Tribals, were in Dover, with the exception of the 30-knotter *Flirt*, which ship was detailed to act as support to the drifters on the barrage line.

Along the barrage four divisions of drifters[1] were stationed to watch the nets, each division being commanded by a Lieutenant, R.N.R.

These divisions were stationed as below :—

Station.	*Division.*	*Flagship.*
Buoys.		
0A to 5A	.. 8th	*Eskburn.*
5A to 10A	.. 10th	*Paradox.*
10A to 15A	.. 16th	*Young Crow.*
15A to 20A	.. 12th	*Devon County.*

Working with these drifters were the armed wireless trawler *H. E. Stroud* near 4A buoy, the yacht *Ombra* near 11A buoy, together with two motor launches in the direction of the South Goodwin Light Vessel.

Thus the actual passage of the Straits of Dover was held only by auxiliary forces capable of attacking a submarine, but quite powerless against a raid by hostile destroyers. The main British destroyer force was disposed in two bodies to defend the Downs and Dunkirk, with a number of vessels in Dover harbour to act as a reserve in case of an unexpected attack.

The local conditions on the night of October 26 were in every way favourable for a destroyer raid. The moon was new, which ensured a dark night and convenient tides, high water at Dover

[1] Each division comprised six drifters, except *Paradox's*, which contained five.

being at 2240, with a rise of 18 ft. The tidal stream in the Straits would begin to run to the north-eastward about 2115, with a maximum strength of about three knots, thus assisting the retreat of the enemy. Though the early part of the night was calm and clear with good visibility, about midnight the sky clouded over. There was little wind, but at about 0200 a breeze sprang up from the south-west, which rapidly increased to gale force.

5. The German Movements : General Outline.—To give a complete and accurate account of such events as occurred in the Straits of Dover on the night of October 26-27, 1916, is perhaps impossible. The conditions of destroyer actions at night are not in any case favourable for the keeping of accurate records; and, as will be seen later, there was in this instance an added element of confusion due to vessels losing touch with one another.

If the movements of our own ships are in many cases obscure it need scarcely be said that the proceedings of the enemy are at present even more uncertain, so that before embarking on a detailed consideration of events it may be as well to state that three things at least are certain :—

(*a*) That the barrage drifters were being attacked between 2215 and 2320.

(*b*) That an empty transport was boarded by the enemy near the Varne at about 2330.

(*c*) That destroyers coming from Dover were engaged near the barrage between 0040 and 0100.

These facts being established, it is possible to attempt a reconstruction of other events on the night in question, bearing in mind that it may be taken as almost certain that the enemy were working on a prearranged scheme, and that in the circumstances they would take every precaution to avoid two or more of their detachments being in close proximity. Their great advantage in these raids would be the knowledge that any vessel encountered was an enemy, and it is highly improbable that they would have sacrificed this advantage by permitting their vessels to steam about at haphazard.

6. The Attack on the Drifters.—The *Flirt*[1] left harbour for the barrage line about 2010 on the 26th, at the same time as the *Laforey's* division of "L" class destroyers, which were proceeding to Dunkirk. The *Flirt* proceeded at 12 knots on a course which took her about three miles north of No. 9 buoy, which was abeam about an hour later. She continued on the same course, and at about 2135 the Officer of the Watch sighted on the port beam a number of destroyers steaming north-west at high speed, which, when challenged, merely repeated the original challenge and disappeared. In spite of this most suspicious incident the

[1] Lieut. R. Kellett, R.N.

Captain of the *Flirt*, considering that the vessels were probably the *Laforey's* division returning for some reason from Dunkirk, took no further action and made no report.

At about 2210 the 10th Division of Drifters, under the command of the *Paradox*, were to the south-west of No. 6A buoy, steering slowly to the westward, when a number of destroyers were sighted coming up astern and steering about W.N.W. parallel to the barrage.[1] The first four boats passed close to the drifters but did not open fire, and, altering course to W.S.W., passed ahead of the leader. They made no reply to the challenge and took no heed of two rifle shots which were fired at them. Immediately afterwards searchlights were switched on by other destroyers and fire opened, all the drifters being hit except the *Paradox*, which made off to the north-west. The *Spotless Prince*, *Datum*, and *Gleaner of the Sea* were sunk, the remaining drifter, the *Waveney*, being severely damaged and set on fire.

7. Sinking of the "Flirt."—The *Flirt* after sighting the unidentified destroyers at 2135, had continued her patrol and was steering west, when about 2215 she observed gunfire to the northward. Lieut. Kellett decided that he was probably witnessing an attack on a submarine by British destroyers, and he proceeded at full speed to close the scene of action. At about 2235 an object was sighted ahead, and the searchlight revealed it to be the drifter *Waveney* enveloped in smoke and steam and much shattered by shell fire. The *Flirt* stopped near the drifter, and as cries were heard in the water the whaler was ordered away, the Captain ordering the gunner to go in charge of her. He had as yet no suspicion as to the real state of affairs, and although destroyers were sighted in the beam of the searchlight when examining the *Waveney*, he formed the opinion that they were French. Not only was a boat sent to the men in the water, but the First Lieutenant and a seaman of the *Flirt* leapt overboard to their assistance.

Scarcely had the whaler got clear of the ship and picked up one of the *Waveney's* crew, together with the two men from the *Flirt*, when searchlights were switched on the British vessel and a heavy fire from a number of destroyers at close range was poured into her. The *Flirt* disappeared in a cloud of steam and not a single man was picked up from her, the officers and men in the whaler being the sole survivors.[2]

[1] Captain of *Paradox* says that they probably crossed the barrage line at 9A buoy, but it does not appear that he actually saw them do so.

[2] The whaler drifted to the north-eastward across the Barrage and sighted a number of destroyers during the night, but as both British and enemy vessels were in the neighbourhood it is difficult to gain much information from the narrative of the survivors. The wind increased to a gale during the night, but by great good fortune the damaged *Waveney* was sighted at daylight and the whaler succeeded in reaching her. This drifter was subsequently towed into the Downs, but owing to the bad weather she could not be finally salved.

The time of her destruction was probably about 2245.[1]

8. Further Attacks on the Drifters.—After the sinking of the *Flirt* some hostile destroyers seem to have remained in the neighbourhood of 7A buoy, for the skipper of the *Waveney* observed them firing at the wreck of the *Spotless Prince* after the *Flirt* had disappeared.

The next blow was delivered at the 8th Division of Drifters, which were about a mile and a half south-west of the western end of the barrage. These came under fire at about 2310, but the attack seems in this case to have been rather less determined as only one drifter was sunk and one damaged, the remainder escaping towards the Goodwins with their leader, who fired several rockets to give the alarm.

Meanwhile, the Captain of the yacht *Ombra*,[2] in the vicinity of 11A buoy, on sighting the firing to the westward of him had at once come to the conclusion that enemy surface craft were attacking the patrols and sent a wireless message reporting the presence of hostile warships. He then proceeded to gain touch with the drifters of the 16th Division in order to direct them to return to Dover. This being accomplished, the yacht followed, but sighting two enemy destroyers turned back to avoid them and lost touch with the drifters. The latter on the way to Dover apparently ran into a division of hostile destroyers about 2325, two drifters being sunk and one severely damaged.

The details of the movements of *Ombra* and 16th Division of Drifters are obscure. The report of the *Ombra* states that at 2230 she left 11A buoy and proceeded to inform the drifters which were near No. 9 Area Buoy, *i.e.*, over 10 miles from 11A buoy. No time is given for her arrival, but she states that after warning the drifters two enemy destroyers were sighted on each quarter which did not open fire. Allowing for the time taken to proceed from No. 11A buoy to No. 9 and warn the drifters this could not have been before about 2340. The leader of the division (*Young Crow*), however, states that firing had been observed " in the direction of the Goodwins " after 2200, and the yacht ordered the drifters to return about 2315 ; shortly afterwards they ran into the enemy. The estimates as to time are very diverse, but it does not seem possible that the drifters could have been as far south as No. 9 Area buoy ; they are likely to have been nearer No. 9A buoy. Further confusion is due to the fact that the *Ombra* reported by signal that firing was taking place to the northward of her, but in the written report she

[1] The times given for the first attack on the drifters vary greatly. The gunner of the *Flirt* , however, noted that he was called at 2220 when the *Flirt* was already proceeding towards the firing. He also remembered that just before leaving the ship a signal was reported ordering the *Flirt* to return to Dover at 0700. This was made at 2230 and probably reported at about 2235. These data seem to be in sufficient agreement to fix the time with some accuracy.

[2] Commdr. W. H. Owen, R.N.R.

states that she saw firing to the south-westward while closing the drifters, which could hardly have been the case had she been proceeding on a south-westerly course herself. The signals relating to her position do not make it clear whether 9A or 9 Area buoy was referred to by her, but it is possible to fix approximately the position where the 16th Division was attacked as the wreck of the *Ajax II* and a boat containing survivors of the *Launch Out* were encountered by the *Cossack* about two miles north of No. 5A buoy at 0140. If a drift of six miles is allowed for, this places the drifters when attacked about four miles south of the barrage and near the centre of it.

This episode has been dealt with at some length as it illustrates the difficulty of reconciling the various vague and incomplete accounts.

9. The Attack on the Transport Line.—With the attack on the 16th Drifter Division about 2330 the first phase of the raid ends, and more than an hour elapsed before there was further activity in the vicinity of the barrage. The next appearance of the enemy occurred further south, about 2300, when the Hospital Ship *Jan Breydel*, on her way to Boulogne and about seven miles west of Gris Nez, sighted five destroyers crossing her bows on a north easterly course. The transport *Queen* was at this time on her way from Boulogne with all navigation lights burning, and just to the south-eastward of the Ridge Shoal she passed the Hospital Ship *St. Denis*. The latter, after passing the *Queen*, noticed that the transport was being closely followed by five destroyers, but she did not suspect anything irregular and continued on her way to Boulogne. Shortly after passing the Ridge the German destroyers which had been following the *Queen* came up on each side of her and stopped her by firing a shot across her bows. She was then boarded, the wireless was destroyed, and the crew given three minutes to abandon the ship. The Captain had only just time to destroy his confidential instructions before the arrival of the enemy, and he handed them as the ship's papers his passenger certificate. The transport was abandoned without loss, the crew leaving in six boats, and the enemy then fired several shots into the ship and departed in the direction of Cape Gris Nez. The boats soon lost sight of the ship, which was darkened, and it was believed that she had sunk.

The firing had been observed by P.34, which was patrolling north-west of the Varne, and she at once proceeded in its direction, picking up two boats at 2340.[1]

[1] The *Queen* did not sink till several hours later, when she had drifted up to the South Goodwin. Unfortunately the survivors did not make it clear that they had not seen her sink or she would have been salved. The account given by the master of the *Queen* gives the time of her being boarded as 2240 and the position as 3′ N.E. of the Varne; but all other accounts, in particular P.34's, show these details to be quite wrong. The *St. Denis* passed the *Queen* after 2300, and P.34 reports sighting gun flashes at 2325.

10. The German Operations.—It will be seen from the foregoing that there were at least two enemy divisions operating in separate areas, and the principal problem is whether they were both present at the first attack on the drifters or not.

The destroyers sighted by the *Flirt* at 2135 were well to the southward of the barrage, and the fact that they did not open fire on the British vessel makes it appear that they intended to carry out some mission further down Channel and did not wish to invite attention. On the other hand, the Southern Division was not sighted again till 2300, only about 18 miles from the first position. As, however, the *Jan Breydel* sighted the Germans steering north-east, it is possible that they had carried out a sweep further down Channel but had failed to sight any vessels and met the *Queen* on their return journey. This division seems to have consisted of five boats. The account given by the Commanding Officer of the *Paradox* (*see* para. 6), however, makes it appear that the four leading destroyers did not fire at him but altered course to the W.S.W. This, at first sight, looks as though these were the destroyers detailed for the southern attack, but on the whole it is not probable. To reach the position in which they were sighted by the *Jan Breydel* they would have had to steam a full 30 knots, and there would also seem to be no reason why they should then be steaming on a north-easterly course. It also does not seem likely that the vessels sighted by the *Flirt* so far to the southward would waste time by closing the barrage before directing their course towards the transport line. The failure of the leading German destroyers to engage the drifters may be due to the fact that they were detailed as a force to cover the vessels attacking the drifters and were thus exposed to counter-attack by burning searchlights.

The German movements appear to have been as follows:—About 12 destroyers were employed in all, and these separated into two divisions somewhere to the north-eastward of the barrage. One division of five boats proceeded southward to attack the transport route off Boulogne. The second division attacked the 10th Division of Drifters near 6A buoy, sank the *Flirt*, proceeded to the westward and engaged the 8th Drifter Division, after which they proceeded to the north-east at about 2330. Their exact movements during these operations are, of course, impossible to reconstruct, but it is noteworthy that the survivors of the *Flirt* state that they saw a division of German destroyers pass them about an hour after the destruction of their ship, or about 2345.

11. Action taken at Dover.—The first intelligence was received at Dover when the yacht *Ombra* reported enemy warships 20 miles east of Dover, a signal which reached the Vice-Admiral about 2230[1] (*see* para. 8). The only vessels at Admiral Bacon's disposal capable of dealing with the German destroyers of the

[1] B3. The position was not accurate.

Flanders Flotillas were the four " L " class destroyers of the *Lawford's* division in the Downs, the similar vessels of the *Laforey's* division at Dunkirk, and six Tribals[1] in Dover Harbour.

The news was at once passed to the Commodore at Dunkirk and the Depôt Commander (Commander K. Kiddle), who at this time was carrying out the duties of Captain (D) at Dover. The latter was ordered to send all Tribals to investigate, and at 2250 they were ordered to slip and proceed under the command of the *Viking* to the position given by the *Ombra*.[2]

To Commander Kiddle's enquiry what orders should be given to the *Lawford's* division in the Downs, he was informed that they should be instructed to weigh and keep a good look out, the Admiral intending them to remain in the Downs.[3] The Commodore at Dunkirk also enquired whether he should send the *Laforey's* division, a measure which was approved by the Vice-Admiral at 2255.[4] The *Carysfort* was ordered to prepare to slip, but she reported that she would not be ready to proceed for an hour and a quarter, though steam was being raised with all despatch.

There was as yet no indication as to the nature of the enemy's force or its objective, but in response to a question from the Admiral the *Ombra* made it clear that enemy destroyers were present.[5] Subsequently the code-word which had been established to indicate a raid by the enemy on the Straits was made by W/T, and on the receipt of this all auxiliary patrol craft were supposed to return to harbour. Steps were also taken to strengthen the patrol on the traffic line by sending P.21 from Dover and ordering the other " P " boats to spread between the Folkestone Gate and Beachy Head.[6]

When about midnight a report was received from Calais that there were Zeppelins accompanying the enemy's vessels in the Channel, the intelligence coming in from shore stations with regard to firing seen near the Varne was attributed to a Zeppelin dropping bombs,[7] whereas in reality it referred to the attack on the *Queen*. Thus at 0025 the Vice-Admiral at Dover was still quite uncertain as to whether the enemy had actually passed the Barrage, as a report from the *Ombra* that the enemy were near No. 9 buoy at 2335 does not seem to have been credited.[8]

At 0029, however, he received from P.34 news of the attack on the *Queen*, and that the enemy's destroyers had disappeared in the direction of Gris Nez.[9] The *Carysfort* was now nearly

[1] *Viking* (Commdr. H. Oliphant), *Cossack, Amazon, Mohawk, Tartar, Nubian* (Commdr. M. R. Bernard). The *Viking* was armed with a 6-in. gun forward; *Amazon* and *Nubian* had 4-in. guns, the remainder were armed with 12-pdrs. *Viking* was Senior Officer.
[2] B5, 6, 7, 10, 11. [3] B9, 14, 16. [4] B12. [5] B4, 13. [6] B17, 21.
[7] B20, A.D.P.'s letter of October 30. [8] B18, 19, 22, 25.
[9] B23, 27. There seems to have been some delay in reporting this signal to Vice-Admiral. It was received by ships between 0010 and 0015.

ready to proceed; the orders which had been given her to patrol between Folkestone and Gris Nez were cancelled, and she was directed to join *Laforey's* division and to patrol with them between the South Goodwin Light Vessel and 9A buoy. Owing apparently to uncertainty as to the position of the *Laforey*, however, she did not leave harbour till later and played no part in subsequent events.[1]

12. The Tribals Proceed.—The orders given to the Tribals at 2250 simply directed them to slip and proceed out of harbour under the orders of the *Viking*, only the latter vessel being informed of the intelligence received from the *Ombra*.[2] Owing to the difficulties inseparable from getting under weigh in a congested harbour at night-time, the destroyers were somewhat delayed in leaving,[3] but of even greater importance was the fact that they left by different entrances.

The *Viking, Mohawk* and *Tartar* left by the western entrance, joined up outside, and proceeded in company in the direction of 9A buoy at 25 knots.[4] The remaining three destroyers—*Nubian, Cossack*, and *Amazon*—left by the eastern entrance, and having failed to find the *Viking*, the *Nubian* steered to the eastward in the direction of some firing which was visible and which was probably that associated with the attack on the 16th Drifter Division. On the way to the eastward the *Nubian* sighted a red rocket[5] near the South Goodwin and spent some minutes searching in that direction, but sighting nothing resumed her course to the eastward, where all firing had now ceased.

About 2350 a signal was made from Dover by wireless giving the *Ombra's* position as two miles west of 9A buoy; this was received by the *Nubian*, who accordingly altered course for the position given.[6] She was proceeding at her utmost speed—about 30 knots—and the *Cossack*, which was an older and slower boat, soon dropped astern and lost touch. The *Amazon* seems to have been able to follow the *Nubian* for a time.

At midnight the position of the Tribals was as follows:—

Viking, Mohawk, and *Tartar* steering for No. 9A buoy (reached it 0005).

Nubian and *Amazon* steering for position 2′ West of 9A buoy and nearly there.

Cossack about 2½′ South of 4A buoy steering E.S.E. At about 0005 the *Viking*, then at No. 9A buoy, observed firing bearing N. 30° E., and simultaneously the *Nubian* observed

[1] B24, 26, 29, 30. [2] B10, 11.
[3] Times given for leaving harbour vary from 2255 to 2320.
[4] As indicating the uncertainty which existed, it may be remarked that *Mohawk* thought *Cossack* was astern of her instead of *Tartar*. *Tartar* thought *Viking* was directly ahead of her with the V.-A. in the *Amazon* leading.
[5] This rocket was probably fired by the " flagship " of the 8th Drifter Division. (*See* para. 8.) [6] B19.

firing bearing N. 60° E. The *Viking's* division at once crossed the barrage and steered in the direction of the firing; the *Nubian* also altered course towards it, and by doing so lost touch with the *Amazon*, who continued on her way to No. 9A buoy.[1]

The *Nubian* shortly after this sighted the barrage buoys about No. 8A, and Commdr. Bernard decided not to cross it as the firing to the northward had ceased and the signal from P.34 relating to the southern attack had been received.[2] After hailing a trawler (the *H. E. Stroud*)[3] to ascertain if she had any intelligence, and only receiving in reply the news that she was returning to Dover, about 0020 course was set S. 80° W., at a speed of 15 knots in the hope of intercepting on their return to the northward the destroyers which had attacked the *Queen*.

The *Amazon* meanwhile crossed the barrage close to 9A buoy at 0035, and at once altered course back and steered S. 70° W. from near the buoy. The *Viking* with her division had steered N. 30° E. till 0020, when all firing having ceased to the northward, and nothing having been sighted, course was altered 16 points, and the division steered back towards the barrage in the hope of meeting the enemy reported by P.34.

The *Cossack*, having apparently sighted the barrage near 12A buoy about 0225, altered course to the south-eastward. She played no part in subsequent events, and was not in action during the night.

Thus at 0040 the approximate positions of the Tribals were :—

Viking, Mohawk, Tartar.—Steering S. 30° E., 15 knots. Crossing barrage near 9A buoy.

Nubian.—Steering S. 80° W. from 8A buoy, 15 knots.

Amazon.—Steering S. 70° W. from 9A buoy (speed uncertain).

Cossack.—Near 15A buoy.

The vessels with the *Viking* were the only ones in touch with one another.

The Tribals were, therefore, scattered, and though no orders had been given for this dispersion it met with the Vice-Admiral's subsequent approval, for he states that he preferred " that the boats should each have proceeded at her maximum speed to the firing since the pressure on the drifters would have been relieved earlier and touch got and kept with the enemy.

" The commonplace tactics were to form divisions and proceed in company. The sound procedure under the circumstances was for each boat to get into the earliest touch with the enemy,

[1] It is difficult to account for this firing to the northward of the barrage. It was possibly due to the First German Division firing at some drifter, which had either drifted, was disabled, or escaped to the northward.

[2] B23.

[3] The *H. E. Stroud* which had been near 4A buoy during the first attack after receiving the general recall about 2330 proceeded to 9A buoy to recall the drifters in her section.

and while keeping touch at sufficient range to fall back in the direction of their friends which were arriving later."[1] This conclusion was difficult to reconcile with the course of events, and the Admiralty did not concur in the tactical principle involved.

13. The Tribals in Action.—At 0040 the *Nubian*, steering S. 80° W., sighted destroyers close ahead about east, and these were taken to be probably the *Lawford's* division from the Downs, who at 0300 had reported that they were steering for Dunkirk from the South Goodwin.[2] The helm was put hard-a-port to avoid them and the challenge was made, which was promptly replied to by gun-fire, five destroyers passing down the *Nubian's* port side and pouring in a heavy fire at close range. Commander Bernard at once starboarded his helm and was endeavouring to ram the last vessel in the enemy's line when a torpedo struck the *Nubian* under the bridge and disabled her. This was followed by the ignition of the forward oil-tanks, and for some minutes the ship was blazing fiercely forward and no attempt could be made to keep touch with the enemy or report their presence.

A few minutes later they met the *Amazon*, who was just turning under the stern of the trawler (*H. E. Stroud*) previously mentioned.[3] The Captain of the *Amazon* considered they resembled British " L " class destroyers, and when they opened fire thought they had made a mistake and challenged them. The five German destroyers passed at full speed, and the after gun of the *Amazon*, the only one able to come into action, was disabled by a shell which struck the ready use cordite rack and started a fire. Another shell burst in the after boiler room and caused a fire there which put two boilers out of action.[4] The Trawler *H. E. Stroud* was hit at this time by a projectile which killed her Commanding Officer.

The *Viking's* division was now—about 0050—about a mile and a half south-west of 9A buoy, steering S. 30° E. The enemy was encountered on the port bow on a roughly opposite course, but it seems that they must have crossed the *Viking's* bow before altering course to the northward, and though Commander Oliphant does not mention this in his report, the *Mohawk*, next astern of the *Viking*, does. The Captain of the *Viking* did not expect to find the enemy, whom he was endeavouring to intercept, so far to the northward, and he challenged the destroyers sighted on his port bow. The only reply was a salvo from each enemy vessel and the Germans then steamed past firing rapidly. The *Mohawk* was hit, her helm jammed, and she turned out of the line

[1] Admiral Bacon's remarks on investigation into conduct of *Laforey's* division.

[2] B28.

[3] *Amazon* reports that this trawler had fired at her, but this is not mentioned in the trawler's report.

[4] The Captain of the *Nubian* notes observing an explosion in the direction in which the Germans had disappeared. This was probably the cordite fire in the *Amazon*.

to port, thus obstructing the *Viking*, who was turning in order to bring the foremost 6-in. gun to bear and pursue the enemy. By the time the *Viking* could get clear and continue the chase the enemy were out of sight and were not seen again. The *Tartar* followed astern of the *Mohawk* and also lost touch at this time. All the British vessels fired a few rounds, but apparently without effect, and the *Mohawk* was the only one hit by the enemy.

The *Viking* steered N. 30° E. at full speed until about 0120, when she abandoned the chase and returned to the barrage line. The *Tartar* also crossed the barrage about the same time, and finally at 7A buoy joined the *Viking* and *Cossack* at about 0300, in accordance with orders issued by the *Viking*.[1]

There seems little reason to doubt that the German vessels which engaged the Tribals between 0040 and 0050 were identical with those which attacked the *Queen* about 2330, 17 miles to the south-westward. Their detailed movements, however, are obscure, but they sank one French armed trawler off Gris Nez and damaged another on the return journey, and then apparently steered towards Dover. At the time it was considered that the division which torpedoed the *Nubian* was different from that which attacked the other Tribals, but it appears very improbable that the enemy would have two separate divisions so close to one another.

14. Lawford's Division.—After the action with the *Viking's* division no further contact was established with the enemy, and the movements of the two Harwich divisions which were at no time engaged must now be considered. The intention of the Vice-Admiral at Dover was that the *Lawford's* division in the Downs should remain there under weigh and keep a good look out, while the *Laforey's* division from Dunkirk closed the reported position of the enemy[2] (para. 11). The *Lawford*, however, read the first signal from Dover as referring to hostile airships instead of warships, and accordingly, when the message from P.34 with regard to the attack on the *Queen* was intercepted, her Captain decided that in view of hostile destroyers being present to the southward he ought to leave the Downs, and on passing the South Goodwin Light Vessel at 0030 he directed his course towards Dunkirk. When this was reported the Vice-Admiral, Dover, was asked for further instructions, but no answer was received as, owing to a telephonic error, a signal ordering the division to return to the Downs was made to the *Laforey* instead of the *Lawford*.[3]

At 0040 the *Lawford*, then steering S. 60° E. at 20 knots,

[1] B37. *Viking* chased N. 30° E. It seems probable that the enemy steered further to the eastward, as though plainly seen by the *Viking* the *Tartar* (the rear ship) could not distinguish them. *Tartar* reports that she followed *Viking* after the action, but the latter definitely says that she did not, and the *Tartar's* track chart is very unlike the *Viking's*.

[2] B9, 12, 14, 16. [3] B28, 31.

sighted firing a few degrees on the port bow, followed by a large flare. This was evidently the torpedoing of the *Nubian*. Quantities of smoke lying low were then encountered, and the *Lawford's* division chased to the northward until, on clearing the smoke about 0105, they sighted the *Nubian* disabled near 5A buoy, firing red lights in order to attract attention. The *Lark* was detailed to take her in tow, and she was taken in tow stern first about 0147[1] after they had drifted over the barrage. It was now blowing a full gale from the south-west; between the South Goodwin and the eastern entrance to Dover the towing hawser parted at 0548, and she drifted ashore under the South Foreland, west of St. Margaret's Bay.[2]

15. The "Laforey's" Division.—In accordance with the Vice-Admiral's orders received through the Commodore, Dunkirk, four vessels of the *Laforey's* division left Dunkirk Roads at 2330 and proceeded to the westward, the Dyck Light Vessel being passed at 0010. Firing had already been observed in the direction of Dover, and though it had now died down, Commander Hornell increased to full speed, and set his course to pass south of the Outer Ruytingen Shoal.[3] At about 0044, when in a position about five miles S.S.E. of 9A buoy, firing was sighted to the north-westward and course was altered towards it. Smoke was sighted, and, in fact, the *Laforey's* division can have only been a short distance to the southward of the *Viking's* action, but Commander Hornell was unable to establish contact.[4] At 0050 the *Lucifer* and *Laurel* were detached to investigate to the northward, losing touch with their divisional leader, but sighting nothing. At about 0100 the signal ordering a return to the Downs which was meant for *Lawford*, but actually made to *Laforey* was received, and the *Laforey* and *Liberty* abandoned the chase and proceeded in accordance with these orders.[5] The whole division had crossed the barrage near 9A buoy when steering north, and subsequently the *Laurel* and *Lucifer* had become separated. The various vessels gradually made their way to the vicinity of the South Goodwin, and at 0300 were ordered to spread along the barrage in order to search for disabled drifters.

16. Conclusion.—It does not appear probable that the enemy ships sustained any serious injuries in this operation. At first it was hoped that two German destroyers had been sunk by explosion when crossing the barrage, and a public announcement

[1] B38.

[2] Her after portion was subsequently salved and built on to the bows of the *Zulu* which had been mined. The resulting destroyer was named the *Zubian* and was commissioned in July, 1917.

[3] Neither *Laforey* nor *Lucifer* had the barrage marked on their charts, and were unaware of its existence.

[4] *Cossack*, who had become separated from *Nubian's* division, seems to have taken station astern of *Laforey's* division about 0045. Her account is obscure and she was not identified by any of the "L" boats.

[5] B31.

to this effect was made. This was owing to the fact that the glare of several heavy explosions was witnessed in the vicinity of the nets, but it seems probable that, in so far as they had any foundation, these were the torpedoing of the *Nubian* or the cordite fire in the *Amazon*.

The efficiency of the barrage had evidently been greatly exaggerated, for 14 British destroyers crossed it at various points during the course of the night without suffering any damage.

As a result of this raid the Admiralty on November 4 conveyed to Vice-Admiral Bacon their view as to the relative importance of the various duties devolving on the Dover Force.

"The work of that force has consisted in protecting the drifters on duty at the mine barrages, submarine hunting, occasional bombardments of the enemy batteries installed in Belgium, air raids and reconnaissance, protection of shipping in the Downs, watching the Belgian coast to prevent a raid at La Panne,[1] organising and protecting cross-channel traffic, and escorting vessels in the Channel.

"In Their Lordships' view the most important of these are those connected with the cross-channel traffic and protection of the Downs from the attack of surface vessels, such as German flotillas at night. Other considerations may be allowed to give place to these when it is known or expected that the flotillas at Zeebrugge or Ostend are in a state of readiness and have been reinforced by vessels from the German Bight."[2]

These opinions, however, were not intended to discourage active operations on the Belgian coast.

Arrangements were also made to reinforce the Dover destroyers to some extent; and express directions were given that "L" class destroyers lent from Harwich were to be kept concentrated and used as a fighting flotilla in preference to being dispersed on convoy and escort duties.

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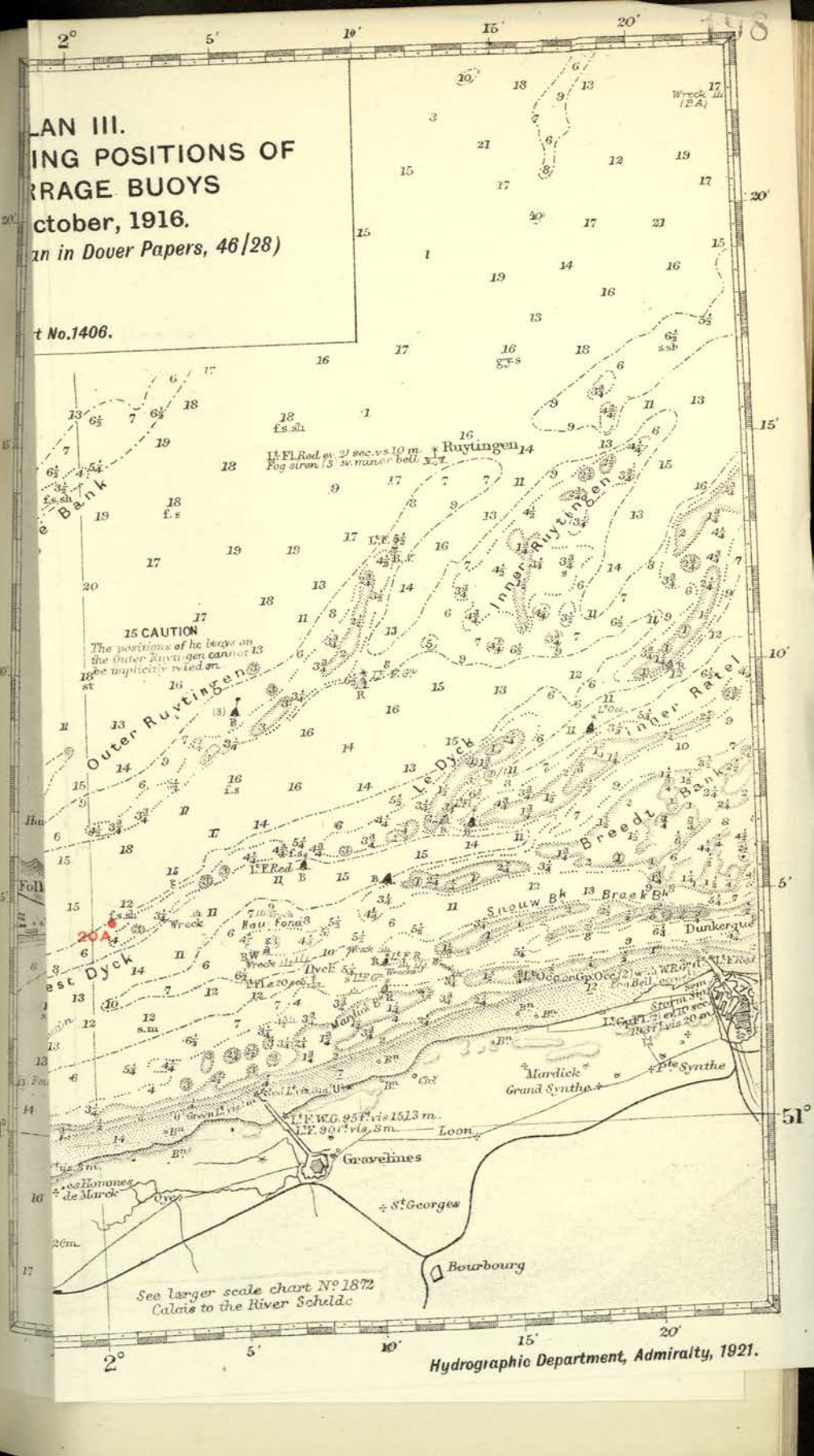
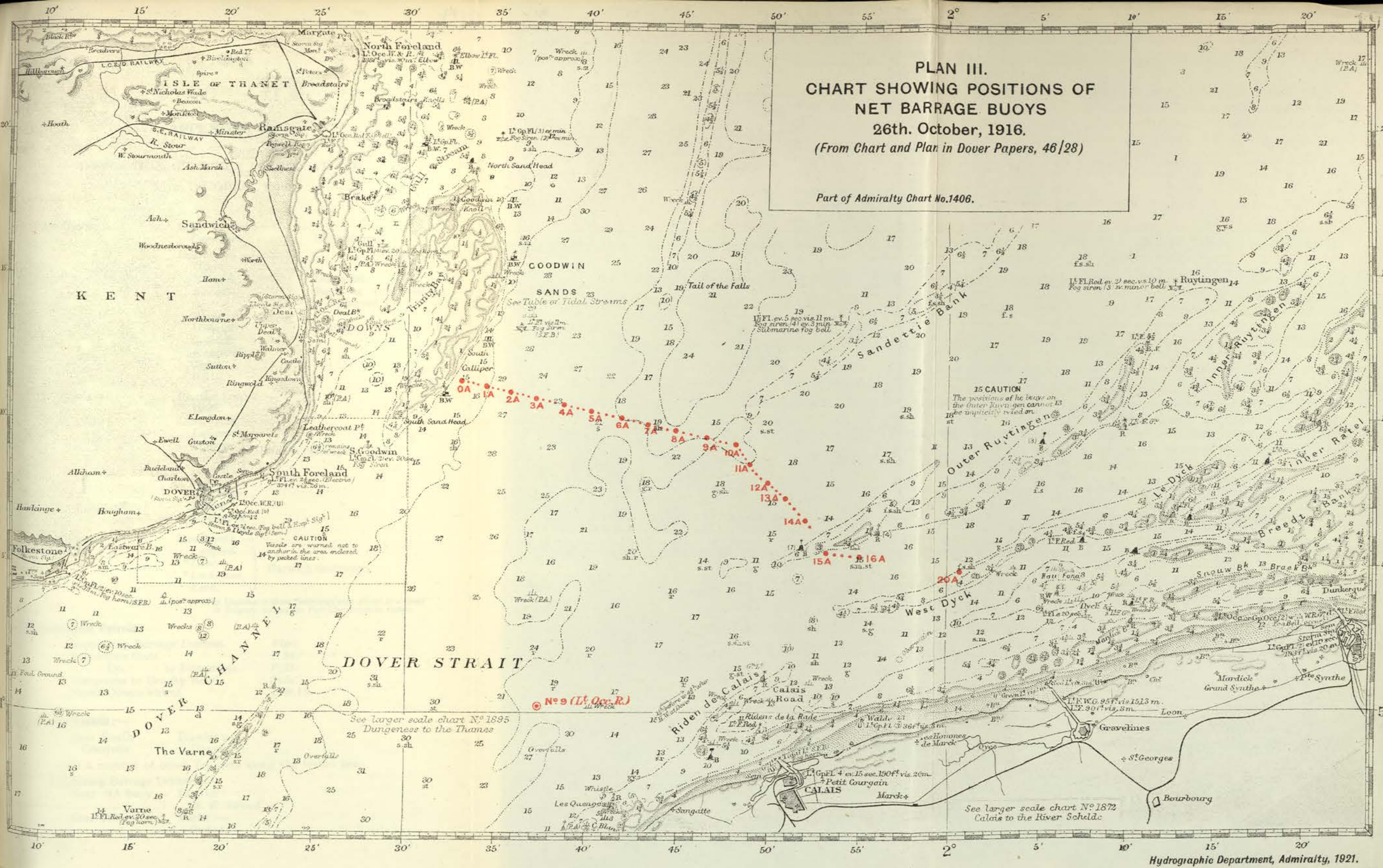
[1] *I.e.*, behind the military lines.

[2] M.09766/16.




PLAN III.
CHART SHOWING POSITIONS OF
NET BARRAGE BUOYS
26th. October, 1916.
(From Chart and Plan in Dover Papers, 46/28)
Part of Admiralty Chart No.1406.
0A
1A
2A
3A
4A
5A
6A
7A
8A
9A
10A
11A
12A
13A
14A
15A
16A
20A
KENT
ISLE OF THANET
DOVER STRAIT
DOVER CHANNEL
GOODWIN SANDS
See Table of Tidal Streams
North Foreland
South Foreland
Ramsgate
Sandwich
Deal
DOWNS
Folkestone
DOVER
The Varne
Varne
Calais
Gravelines
Bourbourg
Ruytingen
Inner Ruytingen
Outer Ruytingen
Sandettie Bank
West Dyck
Le Dyck
Breedt Bank
Inner Ratel
Snouw Bk
Braek Bk
Dunkerque
Mardick
Grand Synthe
Pte Synthe
Loon
St Georges
Marck
Petit Courgain
Les Hommes de Marck
Sangatte
Les Quenocs
Whistle
Riden de Calais
Calais Road
Riden de la Rade
Walde
Tail of the Falls
Gull Stream
Trinity Bay
North Sand Head
South Sand Head
South Calliper
Leathercoat Pt
S. Goodwin
Brake
Goodwin Knoll
Margate
Broadstairs
Minster
Ash Marsh
Ash
Woodnesborough
Worth
Ham
Northbourne
Sutton
Ringwold
Walmer
Kingsdown
E. Langdon
St Margarets
Ewell
Guston
Buckland
Charlton
Hawkinge
Hougham
Eastware B.
Wreck
Wrecks
Overfalls
Foul Ground
Nº 9 (Lt Occ. R.)
See larger scale chart Nº 1895
Dungeness to the Thames
See larger scale chart Nº 1872
Calais to the River Schelde
CAUTION
The positions of the buoys on the Outer Ruytingen cannot be implicitly relied on
CAUTION
Vessels are warned not to anchor in the area enclosed by pecked lines.
Hydrographic Department, Admiralty, 1921.

APPENDIX A.

DISPOSITION OF DOVER PATROL AT 2200, 26TH OCTOBER, 1916.

AT DOVER :—	Light Cruiser :—	
	Carysfort.	Banked fires.
	Destroyers :—	
	Viking.	
	Amazon.	Damaged.
	Nubian.	Sunk or otherwise destroyed.
	Tartar.	
	Mohawk.	Damaged.
	Cossack.	
	Kangaroo.	
	Gipsy.	
	*P.*21.	
AT DUNKIRK :—	Flotilla Leader :—	
	Swift.	
	Destroyers :—	
	Laforey. *Liberty.* *Lucifer.* *Laurel.*	Harwich destroyers.
	Syren.	
	Racehorse.	
	Falcon.	
	Myrmidon.	
OFF DEAL :—	Destroyers :—	
	Lawford. **Lance.* **Lochinvar.* *Lark.*	Harwich destroyers.

* The Captains of these destroyers were absent at a Court of Enquiry, leaving the First Lieutenants in charge.

Miscellaneous Patrols :—

Supporting Barrage Drifters.	*Flirt.*
Folkestone Gate.	*P.*34.
Do. to Dungeness.	*P.*23.
Dungeness to Beachy Head.	*Zulu.*
North Downs Patrol.	*T.B.*15.

Auxiliary Vessels :—

Near South Goodwin.	Trawler :—	*Dagon.*

Also a number of other Trawlers along the traffic line.

Supporting Barrage Drifters :—

Near 4A buoy.	Trawler :—	*H. E. Stroud.*
Near 11A buoy.	Yacht :—	*Ombra.*

Auxiliary Vessels (*contd.*) :—

Barrage Drifters :—

Near 2A buoy. Eighth Division :—
Eskburn (Flagship).
South Tyne.
East Holme.
Girl Norah.
Pleasants. — Damaged.
Roburn. — Sunk or otherwise destroyed.

Near 7A buoy. Tenth Division :—
Paradox (Flagship).
Spotless Prince.
Waveney.
Gleaner of the Sea.
Datum.
— Sunk or otherwise destroyed.

S.W. of 9A buoy. 16th Division :—
Young Crow (Flagship).
E.B.C. — Damaged.
Ajax II.
Launch Out.
— Sunk or otherwise destroyed.
Mishe Nahma.
I.F.S.

East of 15A buoy. 15th Division :—
Devon County (Flagship).
Girl Annie.
F.H.S.
New Spray.
Broadland.
Roulette.

APPENDIX B.

TELEGRAMS, SIGNALS, ETC.

The first time given is the time the signal was actually made so far as it can be ascertained.

The time given at the end of the signal is the " time of origin."

Abbreviations :—

A.D.P. = Admiral Dover Patrol.
D.C. = Depôt Commander (who carried out the duties of Capt. D. at Dover).
P.W.S.S. = Port War Signal Station. Dover Castle.

1. *From* Admiralty. — October 24th.
To A.D.P. — Sent 0910.
826. Secret. During night a reinforcement of destroyers from Germany reached Belgian ports, believed to consist of one Flotilla.

2. *From* A.D.P. — October 24th.
To Admiralty. — Sent 1030.
131. French report 27 steel barges painted grey and decked for a third of their length armed with guns and machine guns near Passchendale on the Ostend-Bruges Canal.

October 26th–27th.

3. *From* P.W.S.S. — 2230.
To A.D.P.
From *Ombra*. Enemy's warships 20 miles East of Dover.

4. *From* A.D.P. — Not stated.
To P.W.S.S.
What is nature of warships ?

5. *From* A.D.P. — Not stated.
To Commodore, Dunkirk.
Following from *Ombra*, begins :—Enemy's warships 20 miles East of Dover (ends). All Tribals in harbour are being sent to investigate. (2235.)

6. *From* A.D.P. — Not stated.
To D.C.
Following from *Ombra*, begins :—Enemy warships 20 miles East of Dover (ends). Send all Tribals in harbour to investigate. (2235.)

7. *From* D.C. — 2240.
To Tribals.
Prepare to slip. (Also made at same time from A.D.P. to *Carysfort*.)

8. *From* Calais. — Not stated.
To A.D.P.
We observe flashes, apparently gun-fire, to the North of Calais from the Sea. (2240.)

9. *From* D.C.
To A.D.P.
Request instructions for Harwich destroyers now in the Downs. (2245.)

10. *From* D.C. — 2250.
To Tribals.
Slip and proceed out of harbour, *Viking* taking charge.

11. *From* D.C. — 2250.
To Viking.
Ombra reports enemy warships 20 miles East of Dover. Proceed with all available Tribals and investigate. Slip and proceed out of harbour. S.O. taking charge.

12. *From* Commodore, Dunkirk. — Not stated.
To A.D.P.
Your 2235. Shall I send L-class (2250.) (Reply. Yes. 2255.)

13. *From* P.W.S.S. — Not stated.
To A.D.P.
From *Ombra*. Apparently 3 destroyers firing at object north of me. (2255.)

14. *From* A.D.P. — Not stated.
To D.C.
Your 2245. Tell them to weigh and keep a good look out. (2308.)

15. *From Carysfort*. — 2310.
To A.D.P.
Am raising steam with all despatch. Shall require 1¼ hour.

16. *From* D.C. — 2317.
To Lawford.
Urgent. Enemy's warships reported 20 miles East of Dover. Weigh and keep a good look-out. Tribals from Dover and *Laforey's* division from Dunkirk are closing that position. (Word " warships " received in *Lawford* as " airships.") (2258.)

17. *From* A.D.P. 2320.
To General.
Code word indicating " Enemy raid in South." (2320.)

18. *From* P.W.S.S. Not stated.
To A.D.P.
From *Ombra*. Enemy on No. 9 buoy close to me. (2335.)

19. *From* D.C. 2350.
To Viking and *Laforey*.
Priority. *Ombra* position at 11-22 four miles west of No. 9A buoy. She reports firing to northward of her. (2335.)
(No authority has been traced for position given. It appears to have been actually made as " 2 miles west of 9A buoy.")

20. *From* Commodore, Dunkirk. Not stated.
To A.D.P.
Following from Base Commandant, Calais :—
French report fight in Channel. Boats escorted by Zeppelins. (2350.)

21. *From* D.C. 0000.
To P.23, *P*.34 and *P*.21.
Spread between Folkestone Gate and Beachy Head in following order :—*P*.21, *P*.34, *P*.23. (2350.)

22. *From* P.W.S.S. Not stated.
To A.D.P.
Dagon (trawler) reports drifters report German destroyers in Channel. (0005.)

23. *From P*.34. 0010 to 0015.
To D.C. and 6th Flotilla. Received by A.D.P. 0029.
Urgent. German destroyers reported off Folkestone Gate. Steamship *Queen* sunk by German destroyers off Varne. Have picked up part of crew. Last seen steaming for Cape Gris Nez. (0000.)

24. *From Carysfort*. 0017.
To A.D.P.
Shall have steam shortly after 0020. Request instructions and direction as to route.

25. *From* A.D.P. Not stated.
To P.W.S.S.
Your 0005 ask *Dagon* if German destroyers have passed through to westward or remain east of Net defence. (0025.)

26. *From* A.D.P. 0023.
To Carysfort.
Patrol between Folkestone and Gris Nez.

27. *From P*. 34. 0025.
To D.C.
Six German destroyers sank *Queen* 1140 off Varne Light Vessel. (0015.)

28. *From Lawford*. 0029.
To D.C.
My position now South Goodwin light vessel, am proceeding towards Dunkirk. Request further instructions. (0030.)

29. *From* A.D.P. 0048.
To Carysfort.
Cancel last signal you are to join up with *Laforey's* division. Her position has been asked for.

30. *From* A.D.P. 0045.
To Carysfort.
You are to patrol with 4 destroyers between South Goodwin and 9A buoy. It is possible that French submarines may be out to eastward of the line joining 9A buoy to the N.E. Varne buoy.

31. *From* A.D.P. 0047.
To Laforey.
Indicate position of your division. (0040.)

32. *From* A.D.P. 0048.
To Lawford.
Your division return to Downs forthwith. (0035.)
(*Note*.—Owing to a telephonic error this signal was actually made to *Laforey*.)

33. *From Viking*. 0055.
To Cossack.
Urgent. Tribals attacking off 7A buoy. (0055.) (This position was very approximate.)

34. *From Cossack*. 0107.
To Viking.
What is your course ? (0103.)

35. *From Amazon*. 0110.
To D.C.
Priority. Two boilers out of action. After gun damaged. Five men killed. Am returning to base. (0100.)

36. *From Laforey*. 0115.
To A.D.P.
Position approximately 51° 6′ N., 1° 38′ E. (0058.)

37. *From Viking*.
To Tartar. 0125.
Returning S.W. to 7A buoy. (0120.)

38. *From Viking*. 0126.
To Tartar, Cossack and *Nubian*.
Rendezvous 7A buoy. (0130.)

39. *From Lawford*. 0137.
To D.C. and *Viking*.
Nubian out of action near No. 2 buoy. *Lark* taking her in tow. (0140.)
(*Note*.—No. 2 buoy was a buoy S.W. of 5A buoy. It had been removed but the Harwich destroyers do not seem to have been aware of this.)

40. *From Nubian (via Lark)*. 0218.
To A.D.P. and D.C.
Nubian sighted 5 German destroyers and was torpedoed at 12.40 a.m. (0120).

41. *From* A.D.P. 0303.
To Laforey.
Spread your division along barrage line to look out for any disabled trawlers or drifters. (0240.)

CHAPTER II.

THE DESTROYER RAID ON THE DOWNS AND THE STRAITS OF DOVER, FEBRUARY 25, 1917.

1. The Attack on the North Downs, November 23, 1916.—After their successful raid on the Straits of Dover in October, 1916, the enemy's Flanders Destroyer Flotilla did not attempt to repeat the operation until February, 1917, but at 2240 on the night of November 23 six hostile destroyers appeared in the northern approach to the Downs.[1] Here they were sighted by the armed drifters which patrolled from the North Foreland to the North Goodwin Light Vessel, and a rocket was fired to give the alarm. The enemy then turned away to the eastward and made off before the division of destroyers anchored in the Downs could engage them. A few shots were fired at the drifters, and one of the latter—the *Acceptable*—was considerably damaged, but suffered no casualties; otherwise the raid was quite futile, for no serious attempt was made to penetrate into the Downs where over a hundred merchant vessels were anchored. The Germans claimed to have bombarded Ramsgate, but there was no foundation for this statement as no shells fell on the shore. No hostile vessels were sighted in the neighbourhood of the barrage.

2. Disposition of Dover Forces, February 25, 1917.—The October raid had revealed how small was the number of destroyers fit to meet the Germans on equal terms at the disposal of Sir Reginald Bacon, and as the destroyers and flotilla leaders ordered since the war were completed, the Dover Patrol was gradually strengthened by the addition of vessels released from the Grand Fleet Flotillas. There was also a strong detachment of the Harwich force always stationed at Dover to assist the Sixth Flotilla in meeting enemy raids.

On the night of February 25 the Vice-Admiral at Dover was able to dispose of two light cruisers, two flotilla leaders, 12 "L" class destroyers, one "I" class, four "H" class, and the *Viking*,[2] apart from the older and smaller destroyers which were employed on traffic patrols and escort duties, and not including any vessels which may have been at Dunkirk and which are not mentioned in the reports.

The method of disposing the available forces was somewhat different from that employed in October. The drifters were withdrawn from the barrage at night and their place was taken by destroyers, four or five in number, which patrolled singly on lines running south-west for five miles from the barrage light-buoys, which were now placed at 5A, 7A, 9A, 11A, and

[1] High water, Dover, 2135. New Moon on November 24.

[2] Armament "L" class, 3 4 in.; "H" and "I" classes, 2 4 in., 2 12 pdrs.; *Viking*, 1 6 in., 1 4 in.

13A. There was thus a cordon of isolated ships across the central portion of the Straits, with a distance of about two miles between each patrol line.

The light cruisers and a division of destroyers were stationed in the Downs where they lay at anchor off Deal. Two monitors were also anchored in the Downs to act as floating batteries, one being stationed off Ramsgate and one off Deal. The northern approach to the Downs was watched by a torpedo boat and armed drifters. The rest of the ships remained in Dover at night ready to slip and proceed to any point where the enemy might be reported.

On the night of February 25 the Barrage Patrol consisted of:

Lance, patrolling from	5A	buoy.
Landrail ,,	7A	,,
Lochinvar ,,	9A	,,
Laverock ,,	11A	,,
Laurel ,,	13A	,,

In the Small Downs (off Deal) were the light cruisers *Conquest* and *Active*, with the destroyers *Porpoise*, *Paragon*, *Unity* and *Ambuscade*. The monitor *Erebus* was anchored off Ramsgate and the *Terror* off Deal.

In Dover harbour were the flotilla leaders *Broke* and *Faulknor* and nine destroyers.

The night was fine but overcast, the moon, which was four days old, being obscured by clouds. High water at Dover occurred at 0156 on February 26, so that during the first half of the night the tidal stream was running S.W. in the Straits.

3. The Attack on the "Laverock."—At 2230 the *Laverock*, then about three and a half miles south-west of 11A buoy and steering to the north-eastward, sighted a destroyer on her port bow steaming to the south-westward. Immediately afterwards the strange vessel burnt a red flare and a heavy fire was opened on the *Laverock* from a number of destroyers, variously estimated as four or six. They also fired at least two torpedoes, one of which was avoided by the use of the helm, while the other struck the ship under the fore bridge but failed to explode.

The *Laverock* having turned round and steadied on a southerly course engaged the enemy and her captain claimed to have hit one of them. But the odds were too great, and to escape from the concentration of fire the *Laverock* finally broke away to the south-eastward and lost touch with the enemy. The latter appears to have altered course to the northward and retired across the barrage. None of the other destroyers on patrol sighted them.[1]

[1] The only authority for this episode is a somewhat brief report from the *Laverock*. It is not altogether clear, as the ship is described as "surrounded" by the enemy and the "enemy lines" are referred to, from which it appears that the enemy was in two bodies. This, however, is not directly stated.

The *Laverock*, after getting clear of the enemy, endeavoured to regain touch with them, but without success; and at 2255 she resumed the original patrol. The other destroyers on the Barrage Patrol apparently continued their ordinary patrol during this episode.

4. The Bombardment of the Thanet Coast.—The armed drifters at the northern entrance to the Downs were spread on the line joining the North Goodwin Light Vessel to the North Foreland, the drifter furthest inshore being the *John Lincoln*. This vessel was about a mile off the North Foreland, when shortly after 2300 three destroyers were observed about half a mile to seaward steering slowly to the northward along the coast.[1] At about 2310 these ships opened fire towards the land and the drifter at once fired a green rocket, the signal for the attack by surface craft.

The firing was in two bursts, each of a few minutes' duration. The first shots were fired towards the North Foreland, possibly with the intention of damaging the wireless station there, while the second burst was directed at Margate and Westgate. Only slight damage to house property was inflicted by these bombardments, which were over by 2320, the enemy withdrawing to the eastward about that time.[2]

This firing had been observed by the ships in the Downs. Cables were at once slipped and the *Porpoise's* division proceeded at full speed to the northward, passing the Gull Light Vessel at 2317 and reaching the Elbow Light Buoy at 2337. By this time, however, the enemy was out of sight and contact could not be established.

Meanwhile the *Conquest* and *Active* patrolled north-east from the Gull Light Vessel in readiness to engage the enemy should they attempt to enter the Downs, and at 0007 the Captain of the *Conquest* ordered the *Porpoise* to return as nothing had been sighted. The whole force anchored near the Gull Light Vessel at 0055. The two monitors had also observed the firing, the *Erebus* being about 10,000 yds. from the enemy. Unfortunately, it was not realised that a coast bombardment was in progress, the flashes of gun-fire being considered as due to a destroyer action. Fire was not opened, therefore, as the risk of hitting friendly ships was considered to be too great.

5. Movements at Dover.—Owing to the fact that the original signals are not accessible, it is difficult to be certain as to the exact orders issued at Dover. On receipt of the intelligence from the *Laverock* the vessels in harbour were ordered out and

[1] From the position of the *Laverock* sighting the enemy to the position of the enemy off the North Foreland is 20 miles. The enemy sighted by the *Laverock* could hardly have covered the distance in the time against the tide.

[2] Casualties ashore: 1 woman, 2 children, killed.

they sailed at 2320, the Captain (D) (Captain Percy Withers) embarking in the *Viking*. They were ordered to take up a special patrol from the South Foreland to Calais, the two flotilla leaders being responsible for the portion east of No. 9 Area Buoy, and the nine destroyers for the remainder. But before they reached there the news of the enemy's appearance off the North Foreland was received, and at 2335 the Vice-Admiral ordered the Captain (D) to proceed off Ramsgate with one division of destroyers and the two flotilla leaders. These orders were cancelled shortly after midnight and the destroyers took up the Special Patrol, but they sighted nothing during the rest of the night.

CHAPTER III.

THE DESTROYER RAID ON THE STRAITS OF DOVER AND THE NORTH DOWNS. MARCH 17-18, 1917.

1. Disposition of Dover Patrol, March 17.—After the raid of February 25, 1917, when the *Laverock* was hit by a torpedo which failed to explode, and the Thanet coast was bombarded, no change appears to have been made in the dispositions of the Dover force at night. The barrage was guarded by isolated destroyers, each patrolling on a line running five miles south-west from the Barrage Light Buoys. A force of light cruisers and destroyers was anchored off Deal to protect the shipping in the Downs from attack, supported by two monitors, which acted as floating batteries. In Dover harbour the remainder of the available destroyers were stationed and formed a reserve in immediate readiness to proceed to any point attacked or threatened by the enemy.

On the night of March 17 the Barrage Patrol was maintained by four destroyers:

Laertes (S.O.)	patrolling	5′	S.W.	from No.	5A barrage buoy.
Laforey	,,	,,	,,	7A	,,
Llewellyn	,,	,,	,,	9A	,,
Paragon	,,	,,	,,	11A	,,

These patrol lines were about two miles apart.

Anchored in the Small Downs off Deal were the light cruiser *Canterbury*, the flotilla leader *Faulknor*, and the destroyers *Saracen*, *Viking*, *Mentor*, and *Ambuscade*.

The monitors *Erebus* and *Prince Eugene* were also in the Downs, the *Erebus* being anchored off Ramsgate a mile and a half north of the Gull Light Vessel. The *Prince Eugene* was apparently also off Ramsgate.

The vessels held in reserve at Dover consisted of the flotilla leader *Broke* and the destroyers *Myngs*, *Lucifer*, *Linnet*, *Lochinvar* and *Morris*. There were also various "P" boats and older destroyers, but these were quite incapable of taking part in operations against German destroyers.[1]

The moon, in its last quarter, was only above the horizon in the early morning. Low water at Dover occurred at 0012 on March 18, it being the day of neap tides. The tidal conditions, therefore, were not altogether favourable for a raid, but the weather was calm and clear.

2. The Attack on the "Paragon."—At 2250 the *Paragon* was about three miles south-west of 11A buoy, steering N.E. towards the barrage, when three or four destroyers were sighted steaming from the eastward across the *Paragon's* bows. They then altered course to the south-westward and the *Paragon* challenged them, but before the challenge could be completed she was struck by a torpedo in the engine room and the enemy opened a heavy fire at close range. The *Paragon* replied with her foremost gun and a torpedo was fired, which apparently hit one of the enemy's vessels but failed to explode.[2] In a few minutes the *Paragon* broke in two and sank, the depth charges exploding and killing many of the men in the water. The exact circumstances attending the loss of the *Paragon* cannot be very definitely stated as no officers were saved and only three of the ten survivors could give evidence before the subsequent Court of Enquiry.

The explosion of the torpedo was seen by the other vessels on patrol, but its significance was not realised. The *Laforey*, considering that a destroyer had struck a mine, proceeded at full speed to the scene of the accident, which was indicated by wreckage, and arriving there about 2300 she stopped and burnt her searchlight in order to pick up survivors.

The *Llewellyn*, which had only been about two and a half miles from the action, distinguished the flashes of gun-fire and reported the fact by wireless. After proceeding for some distance towards the barrage the *Laforey's* searchlight was observed and the *Llewellyn* closed her and was ordered to assist in picking up survivors. She accordingly stopped near the *Laforey*, and at about 2315 had just switched on her searchlight when she was struck on her stem by a torpedo. This torpedo came from an E.N.E. direction and narrowly missed the *Laforey* before striking the *Llewellyn*. No destroyers were sighted by either vessel and, unfortunately, the Captain of the *Laforey* considered that the torpedo was probably from a submarine and proceeded to the

[1] The number of ships at Dunkirk is nowhere stated in the reports and they took no part in subsequent operations.

[2] It was subsequently recovered with the head missing. It had run correctly.

E.N.E. in an endeavour to attack it. He based his opinion on the fact that no gun-fire had been observed, for he apparently did not know that the *Llewellyn* had sighted the flashes of guns. The *Laforey* continued to cruise at high speed in the neighbourhood of the barrage during the night.

The *Laertes*, which had sighted the glare of the explosion in the *Paragon*, heard no accompanying sound, and her captain concluded that it was the glare of an iron foundry situated on the French coast. On receiving intelligence, however, that the *Paragon* and *Llewellyn* had been torpedoed, the *Laertes* proceeded at full speed to No. 11A buoy, and after cruising to the south-westward picked up the *Llewellyn*. The latter ship was able to steam stern first and finally reached Dover in safety.

It seems clear that the German destroyers steamed to the southward after sinking the *Paragon*, and on their return journey sighted the searchlight of the *Laforey* some distance off and fired one or more torpedoes at considerable range.

3. Intelligence received at Dover.—The explosion in the *Paragon* was observed from the signal station at Dover, but was considered to be lightning, which had been seen earlier, and the first report was received at 2302 from the *Llewellyn*, stating that there was heavy firing in the direction of Calais.

Calais simultaneously reported that the firing had been observed. At 2313 the Vice-Admiral received a message from the *Laforey*, which stated that she was picking up survivors, but gave no further particulars. This intelligence indicated enemy activity, and the destroyers in harbour were ordered to slip and proceed. The torpedoing of the *Paragon* and *Llewellyn* was reported by the *Laforey* at 2328, and about this time the Vice-Admiral ordered the Senior Officer of the ships in harbour to keep his boats together and look out for the enemy.

At 2340, however, an amendment was made to the *Laforey's* report, to the effect that the two destroyers had been torpedoed[1] by a submarine, and this changed the situation considerably. It appeared as if a submarine was stalking the destroyers on the patrol line, and accordingly at 2348 the orders of the vessels in harbour were cancelled and two "P" boats were ordered out to hunt the submarine. The *Laertes* and *Laforey* were also ordered to fall back five miles to the westward of the usual patrol line. It was not till 0107 that the Vice-Admiral learnt that the survivors of the *Paragon* reported sighting hostile destroyers, and by that time there were other indications of the enemy's activity in the Dover area.

[1] The V.-A. in his report states that he was informed that both ships had been *sunk* by a submarine, but this does not agree with the original signals.

4. The Attack on the North Downs.—The northern approach to the Downs was watched by six armed drifters spread between the Broadstairs Knoll Buoy and the North Sand Head, supported by T.B.4, which cruised to the southward.

Normally no merchant vessels were allowed to lie at anchor north of the Gull Light Vessel, but two days previously the s.s. *Greypoint* bound for London had been forced by an engine breakdown to anchor about a mile east of Broadstairs Knoll Buoy,[1] and she was still in this position on the night of March 17.

At about 0035, March 18, the drifter *Paramount* sighted three[2] destroyers coming from the north-eastward, passing close to the eastward of the *Greypoint*. The drifter fired a green rocket, the signal for sighting the enemy, which was replied to by the enemy opening fire at the drifters in the neighbourhood and torpedoing the *Greypoint*. This was at about 0040, after which the enemy appear then to have steered on for about a mile to the south-westward and then altered course to the north-eastward. On their return journey they continued to fire at the drifters, at the sinking *Greypoint*, and bombarded Ramsgate and Broadstairs. One drifter, the *Redwald*, was seriously damaged and had to be beached, but no casualties were caused ashore.

The only British war vessel to sight the enemy was T.B.4, which was in the neighbourhood of the Gull Light Vessel when the firing started and at once proceeded towards it at full speed.[3] About 0050 her Captain was able to distinguish three enemy vessels about two miles ahead steering to the north-eastward and firing towards the land. T.B.4 endeavoured to keep touch, but she was outdistanced. The firing ceased about 0055, and by 0105 the enemy was lost sight of in the neighbourhood of the Elbow Buoy.[4]

The destroyers in the Small Downs slipped their cables at 0042 and proceeded to the northward at full speed in charge of the *Faulknor*, the *Canterbury* following. On receiving from T.B.4 information that the enemy was steering to the eastward the destroyers from the Downs proceeded close to the North Goodwin and thence to the Elbow Buoy in the hope of intercepting the Germans. Nothing, however, was sighted, and at 0130, after examining the vicinity of the Elbow Light Buoy, the vessels returned to the Downs. The monitors had been unable to distinguish any target and so could not open fire. No special measures were taken at Dover to deal with this attack beyond sending out two destroyers to replace the *Paragon* and *Llewellyn* on the Barrage Patrol.

[1] Exact position 51° 20½′ N., 1° 28¾′ E.
[2] Some accounts say four destroyers were sighted.
[3] Her full speed was only 15 knots owing to engine defects.
[4] T.B.4 reported that the enemy appeared to be in action with a force to the northward. There appears to be no foundation for this belief.

APPENDIX A.

SIGNALS SENT AND RECEIVED. MARCH 17TH–18TH.

Abbreviations :—
A.D.P. = Admiral, Dover Patrol.
P.W.S.S. = Port War Signal Station, Dover Castle.
First time given is time of despatch or receipt.

1. *From Llewellyn.* 2302.
To A.D.P., *Laertes.*
Heavy firing direction of Calais. (2257.)

2. *From Laforey.* 2310 (approx.).
To Llewellyn (by visual).
A ship blown up, assist to pick up survivors. Come quick. (No time of origin.)

3. *From Laforey.* 2313.
To A.D.P.
Picking up survivors. (2315.)

4. *From Laforey.* 2320.
To Broke, Myngs, Linnet, Lucifer, Lochinvar, Morris (by visual).
Proceed out of harbour under orders of Senior Officer.

5. *From Laforey.* 2328.
To A.D.P. and *Laertes.*
Priority. *Paragon* and *Llewellyn* torpedoed two miles S.W. No. 11A buoy, *Paragon* 10.50, *Llewellyn* 11.15, *Llewellyn* while picking up survivors. (2325.)

6. *From* A.D.P. 2330.
To Myngs (by visual).
Keep boats together and look out for any signs of the enemy. (2330.)

7. *From Laforey.* 2340.
To A.D.P.
In my 2325, after " buoy " read " by enemy submarines." (*See* No. 5.)

8. *From* A.D.P. 2348.
To Broke, Myngs, Linnet, Lucifer, Lochinvar, Morris (by visual).
Cancel my 2320. (2348.) (*See* No. 4.)

9. *From* A.D.P. 2348.
*To P.*11 and *P.*21 (by visual).
Proceed to patrol line and hunt for a submarine between 11A buoy and the French coast. (2350.)

10. *From* A.D.P. 2355.
To Laertes.
Fall back with *Laforey* 5 miles to the westward. Maintain a good speed while on patrol. Two " P " boats are being sent out to hunt for submarines.

12. *From* A.D.P. 0015.
To Laforey.
Are *Llewellyn* and *Paragon* sunk ? (0015.)

13. *From Laertes.* 0029.
To A.D.P.
Am escorting *Llewellyn* in. She is proceeding stern first. Request tug. (0025.)

14. *From* P.W.S.S. 0044.
To A.D.P.
Leathercote (near S. Foreland) reports heavy gunfire in N.E. direction. Ramsgate reports heavy gunfire Easterly direction still continues. (0040.)

15. *From T.B.*4. 0047.
To A.D.P.
Urgent. Enemy destroyers bombarding Margate. (0045.)

16. *From T.B.*4. 0050.
To A.D.P.
Urgent. Three enemy destroyers steering East. (0050.)

17. *From Laforey.* 1307.
To A.D.P.
Paragon's survivors state they saw enemy's destroyers. (0058.)

CHAPTER IV.

THE DESTROYER RAID ON THE DOVER STRAITS, APRIL 20–21, 1917.

1. Introduction.—The account which follows can only be considered an outline of the events which occurred on the night of April 20-21, 1917. The Vice-Admiral at Dover, in his report at the time, stated that it was difficult to disentangle the facts with regard to this raid, and attention was concentrated on the action which resulted in the destruction of two German destroyers. Among the papers accessible there is no record of the general dispositions on the night in question, nor any copy of the signals made; and subsequent enquiries were confined to investigating the number of the enemy accounted for.

After the raid of March 17-18 the Admiralty informed Admiral Bacon that though the difficulties he had to face in view of the number of vulnerable points in his command were fully appreciated, it was considered desirable that the forces on the Dover Barrage should be more concentrated, and this led to a complete alteration of the patrol system during nights when an attack by the enemy's destroyers seemed likely.

Two flotilla leaders now patrolled on a line running from a point one and a half mile S.W. of No. 5A buoy to a point one and a half mile south-west of the South Goodwin Light Vessel, and this was known as the Western Barrage Patrol. Further to the eastward a division of destroyers patrolled on a line running south-west from 11A buoy, this being designated the Eastern Barrage Patrol. Thus between the Goodwins and the Ruytingen Shoal there were two separate and concentrated forces. Vessels were also maintained as before in the Downs at Dunkirk and in reserve at Dover, but the defence of the Downs was now rendered easier by the completion of shore batteries at Foreness (east of Margate) and the North Foreland. The monitor *Marshal Ney*, which had been specially armed with a battery of 6-in. guns, was also permanently anchored in shoal water off Ramsgate.

The night of April 20 was favourable for a raid by the enemy as it was the day before new moon, and high water occurred at 2230.[1] It was calm and clear during the early part of the night. The flotilla leaders *Swift* (Commdr. A. Peck) and *Broke* (Commdr. E. R. G. R. Evans) formed the Western Barrage Patrol, and a division of destroyers under the *Nugent* the Eastern Barrage Patrol. The destroyers *Mentor*, *Lucifer* and *Lydiard* were in reserve.

2. The German Movements.—From information given by prisoners, it is possible to give some details of the German movements, but the accounts are not altogether satisfactory and

[1] All times given are G.M.T. British Summer Time is used in some of the reports.

leave many points doubtful. On this occasion, instead of an attack being delivered at the Northern Downs and the Straits, it was decided to carry out a bombardment of Dover combined with a demonstration off Calais, though it is uncertain whether the latter was intended as a feint or as a serious bombardment.

To execute this design the Fifth Half-Flotilla, consisting of six destroyers, left Zeebrugge at 1900 on April 20 for the westward and proceeded at 15 knots towards the Dover Straits Barrage.[1] One of the barrage light buoys (probably 3A,[2] but this is not certain) was made about 2230, and course was then directed towards a point about three miles south of Dover. In doing so they must have passed through the Western Barrage Patrol line, but they were not sighted and they reached their destination safely. Meanwhile, either some destroyers were detached to proceed off Calais, or else quite a different force not otherwise identified carried out the demonstration off the French coast. Fire was opened at 2315 from a position about four or five miles off-shore and continued for a few minutes, but apparently no shells fell on the town.

At 2330 the northern division of the enemy, being then about three miles south of Dover, opened fire on the English coast and continued firing for about seven minutes. The ships were at this time steaming slowly on the north-easterly course and engaged an armed trawler (*Sabreur*), which suffered slight damage.[3] Star shells were fired over Dover to illuminate the town, but the bombardment was singularly futile, and, in at least one ship, no point of aim was given.

A large number of shells fell in the open country near Hougham, two miles west of Dover, and others fell a considerable distance inland. Only one fell actually in the town of Dover and no damage whatever was suffered on shore. After ceasing fire the enemy proceeded towards 3A buoy, reaching it at midnight, when the *Swift* and *Broke* were at the eastern end of their patrol.

The Germans are then said to have stood to the south-westward for a time, and it has been suggested that they joined about this time the vessels which had been detached to Calais. There is no evidence of this, however, and it seems improbable that they should select as a rendezvous a position where they were so likely to encounter British vessels coming from either the Downs or Dover.

[1] The destroyers taking part in the raid are given as the *V.71*, *V.73*, *V.81*, *S.53* (S.O.), *G.85* and *G.42*, and are described as sailing in that order. This seems doubtful, as it places the Senior Officer in the centre of the line. The question is of some importance in relation to subsequent events.

[2] Note that 3A light buoy was not in its proper position on the barrage line 1½′ E. of the South Goodwin.

[3] *Sabreur* reports that she first sighted four destroyers and later two more.

Whatever the reason for this south-westerly course it is certain that at 0045, about three miles east of the South Goodwin, they were steering to the eastward.

3. The Action.—On receiving news of the firing that had been seen, the reserve boats were ordered out and apparently commenced to patrol between the South Goodwin and Dover harbour. The *Swift*, therefore, kept somewhat more to the eastward and was steaming on a westerly course when the German destroyers were sighted on the port bow steering on a nearly opposite course. Both sides were in readiness and fire was opened almost simultaneously.

It is almost impossible to construct what followed in detail, in spite of the fact that a careful enquiry was held immediately afterwards. The *Swift* attempted to ram one of the enemy but failed owing to the dazzling effect of her 6-in. gun, and found herself on the other side of the enemy's line. After firing her torpedoes she then chased as far as the barrage, but failing to gain on the enemy gave up the pursuit as a shell-hole forward had resulted in flooding one of the compartments.

The *Broke*, after firing one of her torpedoes, had succeeded in ramming the German destroyer G.42, and then completed the destruction of G.85, which had already been disabled by a torpedo. In accomplishing these feats the *Broke* suffered considerable casualties and had her engines put out of action. After drifting over the barrage she anchored north-east of 2A buoy at about 0200.

This is the outline of the action, but many details are obscure. The number of the German destroyers, for instance, is most uncertain. It was estimated at the time as five or six, and the *Sabreur* saw six, but this does not allow for any boats off Calais. Again, the order in which the German ships steamed is doubtful. Admiral Bacon, in a careful description of the action, assumes that there were six German vessels present, and that the two rear ones were sunk.[1] This, however, was not the impression of those present at the action, who almost unanimously state that it was the second or third destroyer in the line which was rammed, and that the *Broke*, after ramming the G.42, was in action with two more destroyers. Equally uncertain and impossible to decide is which ship first torpedoed the G.85. Both the *Swift* and the *Broke* fired torpedoes almost simultaneously, and it is possible that both hit as the *Swift's* torpedo is said to have exploded on the quarter of the enemy, which would not necessarily inflict sufficient damage to sink her.

Both the disabled German ships sank after floating for some time, and over 100 prisoners were picked up with the help of the reserve division which had hastened to the scene of action.

[1] "The Dover Patrol," p. 355. This diagram shows the *Swift* going round the rear of the Germans. Her captain, however, definitely states he cut through their line.

CHAPTER V.

THE DESTROYER RAID ON THE FOLKESTONE–GRIS NEZ BARRAGE, FEBRUARY 14-15, 1918.

Introductory Note.

In the narrative which follows an attempt has been made to give an account of the German raids on the Straits of Dover during the early hours of February 15, 1918. The account is confined to the actual events, and questions of policy are not dealt with. The main outlines of the raid are clear enough, but with regard to the exact details of the attack on the drifters there is some conflict of evidence and a great deal of vague description, which is not surprising when the circumstances are considered. Wth regard to the fixing of times, however, there is available a certain amount of evidence from spectators such as the shore signal stations, the French T.B.s and the Barrage Patrols not directly involved in the action. These are in substantial agreement with regard to some of the most salient features and enable other events to be interpolated.

The volume "Case 493" contains the following papers, which are the principal sources used :—

1. Report from V.-A., Dover Patrol, dated February 15. This gives a brief outline of events as known at Dover with list of ships sunk and signals made.
2. Minutes of Court of Enquiry held at Dover, February 16-18, with findings of the Court dated February 20.
   This contains a large amount of evidence from survivors, eyewitnesses, etc. Special attention was devoted to ascertaining whether the orders with regard to giving the alarm had been carried out. The Court also gave a conjectural narrative of what actually occurred, but a full examination of the evidence does not seem to corroborate these views in all particulars.
3. Minutes of Proceedings at Court Martial held on Lieut. A. Fergusson, of H.M.S. *Amazon*, March 6, 7, and 8, 1918.
   The evidence of this Court Martial was confined to the incident of the *Amazon's* contact with the enemy during their retreat.
4. Report from Captain of Trawler Patrol, Dover. This includes original reports from the various trawlers.

5. Translation of Report from French T.B.344. Forwarded by the Commodore, Dunkirk, February 18.
6. Report from vessels of 6th Flotilla, on patrol during night of February 14-15. These include reports from *M*.26 and Motor Launches.
7. Report from Captain, Drifter Patrol. This is a general account of the disposition of the drifters and the attack on them. Attached are narratives from men concerned in the action.
8. Logs of Dover W/T Station, Dover Port War Signal Station, 6th Flotilla Signal Station, Folkestone Port War Signal Station.
9. Chart showing disposition of vessels on night in question.
10. Tracing showing positions of drifters on minefield.
11. Tracing showing movements of *M*.26.
    (*Note*.—This appears to be somewhat inaccurate as it makes the monitor steam over five miles in 16 minutes. Her full speed was 9½ knots.)
12. Tracing showing position of *Termagant's* position when *Amazon* sighted enemy.

There are also a number of Minutes, etc., scattered through the volume.

1. General Disposition of Barrage Patrol.—In February, 1918, a barrage of deep mines extended across the Straits of Dover, covering a considerable area between Folkestone and Cape Gris Nez ; and in order to prevent hostile submarines running through the Straits on the surface during the dark hours the minefield was patrolled by a number of vessels, and special arrangements were made for illuminating the area. These vessels were disposed in three main lines. Along the minefield from Folkestone Gate to Cape Gris Nez a large number of drifters were distributed, buoys being laid to assist them in keeping their position. These buoys were numbered from 11 to 16, the former being at the northern end of the line.

About 2½ miles on either side of this line were stationed the vessels to supply light in order to reveal hostile submarines and compel them to dive into the deep minefield. The illumination was provided by special flares and by searchlights. The flares were burnt by trawlers, the searchlights being worked by old 30-knot destroyers, "P" boats and paddle minesweepers, and, in addition, a monitor was stationed near the N.E. Varne buoy, which acted as general support and assisted with her searchlight. The searchlights and flares were burnt according to a time-table so as to maintain a constant illumination of the area, and it was intended that, normally, actual attacks on submarines should be left to the drifters, though full discretion was given to the commanding officers of all vessels to leave their stations to investigate unusual occurrences.

2. Destroyer Dispositions.—The various craft on the minefield were of low fighting value, with the possible exception of the monitor at the N.E. Varne, and protection against an offensive by the German destroyers of the Flanders Force was provided by the larger destroyers and flotilla leaders of the 6th Flotilla. In disposing these vessels, however, account had to be taken of the fact that there were other objectives besides the minefield patrol open to the enemy.

Of these, the shipping in the Downs and the vessels lying in Dunkirk Roads were the principal, and during periods when the absence of the moon and tidal conditions rendered an attack probable special dispositions were made to cover these vulnerable points.

A force was maintained at Dunkirk to protect the Roads and to patrol off the Belgian coast, but this force could exercise little influence on operations in the Downs or the Straits of Dover, as the conditions favourable to an enemy raid to the westward were such as to render their interception by the Dunkirk force very difficult.

A force, consisting of a light cruiser (if available) and destroyers, was anchored in the Downs ready to proceed at short notice to protect the shipping or reinforce the patrols in the Channel. The latter were two in number and were known as the East and West Barrage Patrols, composed of the available flotilla leaders and destroyers mounting 4-in. guns. The West Barrage Patrol steamed up and down a line five miles long running N.E. from a point four miles 180° from the South Goodwin Light Vessel. The Eastern Barrage Patrol cruised on a line running from 11A buoy to No. 9 buoy, which was also approximately five miles long. It was considered that these patrols were sufficiently far away from the minefield illumination to avoid being revealed by it, while it was hoped that any enemy destroyers raiding the patrol vessels would be silhouetted against the glare.

3. Alarm Signals.—The general alarm signal for an attack by enemy surface craft in the Dover Area was a green firework, either rocket, socket signal,[1] or Very's light. On seeing this signal all auxiliary patrol vessels were ordered to close the nearest land, which would have the effect of clearing the minefield. There were no orders as to repeating the signal, and unfortunately some months previous to February, 1918, all green rockets, etc., had been withdrawn, and though they were being re-issued it appears that the drifters were for the most part only supplied with Very's lights.

Very's lights were also used to report the sighting of a submarine, a red followed by a white indicating that the enemy was steering east, the reverse being used for a west-going submarine.

[1] A socket signal is very similar to a rocket, bursting with a loud detonation.

The trawlers fitted with wireless had orders to report *en clair* if enemy surface craft were sighted; the drifters, however, had no similar instructions, but were generally directed to use wireless as little as possible in order to avoid compromising the auxiliary vessels' signal books.

4. Detailed Disposition, Night of February 14-15.—The night of February 14-15 was one favourable to an enemy raid, and the destroyers were disposed accordingly. In the Downs were the *Attentive* and three destroyers, one destroyer remaining in Dover at the Vice-Admiral's disposal. The Western Barrage Patrol consisted of the flotilla leaders *Swift* and *Marksman*, the Eastern Barrage Patrol being maintained by the four destroyers *Termagant*, *Nubian*, *Melpomene* and *Amazon*.

The vessels on the Barrage Patrol were disposed as follows:—There were 58 drifters on the line Folkestone Gate—Gris Nez, and these are best distinguished by the names of the "flagship" of each division. These "flagships" carried a Lieutenant R.N.R. each, who was responsible for the general conduct of his division, and they were disposed from north to south as follows:—

Station.	*Flagship.*	*No. in Division.*
Near Folkestone Gate	*Feasible*	7
Between No. 11 and No. 12 buoy	*Shipmates*	7 (1 sunk).
Between No. 12 and Varne Shoal	*Tessie*	7 do.
Between No. 13 and No. 14 ..	*Chrysanthemum* ..	7 do.
	Begonia	7
Between No. 14 and No. 15 ..	*Jennie Murray* ..	7 (1 sunk).
Each side of No. 15	*Cosmos*	6 (2 sunk).
Between No. 15 and No. 16 ..	*Cloverbank*	4 (1 sunk).
Between No. 16 and Gris Nez ..	*Ocean Roamer* ..	6

Special information had been received that an enemy submarine was likely to be passing the Straits, and the drifters were ordered to be especially vigilant.

The illuminating vessels can be considered as divided into two portions by the Varne Shoal. In the northern portion the paddle minesweeper *Newbury* and the trawler *Sabreur* were stationed to the N.E. of the drifter line, with the paddle minesweeper *Lingfield* and the trawler *Laroone* to the S.W.

In the southern portion were the trawler *Viernoe* near No. 10 buoy, the trawler *Colleague* between 7 and 10 buoys, and the trawler *James Pond* to the southward of No. 7 buoy. In addition, the destroyer *Syren* patrolled between Nos. 7 and 10 buoys. To the S.W. were two flare-burning trawlers, the destroyer *Racehorse* and P.50, but these played no part in subsequent events.

The monitor *M.26*[1] was stationed close to the south-eastward of the N.E. Varne buoy to act as searchlight vessel and general support. Her Captain (Commdr. A. A. Mellin, D.S.O.) was Senior Officer on the minefield.

[1] One 7·5-in. gun.

5. General Conditions, Night of February 14–15.—The conditions in the Straits of Dover during the night of February 14–15 were in every way suitable for a destroyer raid. The moon, only three days old, set before 2200, and high water at Dover occurred about 0130. This meant that the stream through the Straits commenced to run to the N.E. at midnight with a maximum strength of about 2½ knots.

The weather was fine but overcast, the sea remarkably calm for the time of the year. The visibility varied considerably, and there is some conflict of evidence on the subject, but undoubtedly patches of haze were present, and these appear to have been more marked towards the French coast and south-east of the Varne than off Dover and Folkestone.

The exceptional conditions caused by the "light barrage" must also be realised. The flares produced a considerable quantity of smoke, and tended to dazzle those on board the trawlers; the searchlights had also a blinding effect on the crews of the vessels burning them, and the task of keeping a look out, therefore, fell chiefly on the drifters, who were sufficiently removed from the sources of light not to be dazzled by them. The whole area of the minefield was illuminated by a continuous glare, varying in intensity as flares burnt up or died down, and searchlights wheeled and hovered. In such circumstances, flashes and flames did not invite the notice that they would under ordinary conditions, and even gun-fire and detonations were not uncommon when submarines were sighted or mines exploded. This must be fully realised, or some of the events which occurred will appear strange.

6. German Movements.—It is not easy to reconstruct with exactitude the movements either of the enemy or of our own auxiliary vessels on the night in question. When all the conditions are taken into account—the dark night, the sudden assault, the urgency of the occasion—it is not to be wondered that the accounts of those who bore the brunt of the attack exhibit many discrepancies, notably with regard to such details as time and direction. On the whole, however, the narratives of witnesses and survivors of the raid show general agreement.

The German movements prior to establishing contact are, however, obscure. It seems that seven destroyers were employed, and they probably passed between the East and West Barrage Patrols and then separated, four boats steaming towards the Folkestone Gate and three boats on a S.S.W. course for Gris Nez.[1]

The hostile offensive was thus resolved into two attacks, one delivered at the northern and one at the southern flank of the minefield patrol. It appears probable that the attacks were intended to be simultaneous, but in the event the northern blow was delivered slightly in advance of the southern, and will be considered first.

[1] French narrative.

7. The Northern Attack.—At 2345 a submarine was sighted westward of No. 11 buoy proceeding to the eastward, and though attacked, dived and apparently escaped.[1] At about 0040 the trawler *Sabreur* about 5 miles S.E. of Folkestone observed four destroyers pass across the beam of the Folkestone Pier searchlight. They were steaming towards the Folkestone Gate, and the skipper of the trawler believed them to be our own destroyers proceeding to hunt the submarine, when, just as they cleared the searchlight beam, the leading vessel blew four blasts on her siren. Immediately they opened fire on the paddle minesweeper *Newbury*, then about 2 miles E.S.E. of the Southern Gate light vessel, steering E.S.E. The surprise was complete, the vessel was riddled by shell fire, the depth charges exploded on deck, causing severe damage and many casualties, and she was reduced to a wreck. Since she was struck on both sides by projectiles the enemy apparently circled round her; they then proceeded at slow speed down the drifter line, using searchlights to assist their fire.

The drifter *W. Elliot*, of the *Shipmates'* division, between Nos. 11 and 12 buoys, was sunk at this time, and the same fate befel the *Veracity*, which the *Tessie* had ordered to secure to No. 12 buoy, the lighting mechanism of which was broken down. The remainder of the *Tessie's* division, escaping to the N.E. Varne, came under heavy fire from the enemy, as did the paddle minesweeper *Lingfield*, which had come up from the neighbourhood of the Varne on seeing the firing, and a motor launch which was patrolling to the north-eastward. The whole episode apparently occurred during the half-hour from 0040 to 0110, the enemy disappearing to the north-east about 0115.

As in previous raids there was a failure to grasp the fact that enemy destroyers were in the Straits, and no alarm was given. Firing was seen from Dover and Folkestone, and also by the other vessels on patrol; but the situation was so obscure that no one was prepared to give the signal for clearing the minefield. Even those ships, such as the *Sabreur*, which knew definitely that enemy vessels were present, seemed to consider that the duty of giving the alarm rested with others. The *Newbury*[2] was a disabled hulk, with nearly all her ship's company killed or wounded, and not in a condition to make a report; the motor launch thought she had been mistaken for a submarine by our own destroyers; and the *Lingfield* considered she had run into an attack on a submarine, and thus came under fire. Therefore, except for the sight and sound of firing, nothing was known of these events at Dover, and the Western Barrage patrol saw only a few faint flashes about 0100, such as might be associated with the normal activities of the vessels patrolling the minefield.

8. The Southern Attack.—The northern attack commenced at about 0040, when the *Newbury* was overwhelmed.

[1] B.1.

[2] She later seems to have fired green lights, but only as a distress signal to attract attention.

The southern force first appeared about five minutes later, when the French T.B.344, then near La Barrière (No. 2) buoy off the French coast, observed a trawler light a flare in the direction of No. 16 buoy, and immediately afterwards discerned three destroyers silhouetted against the glare of the light. They were altering course to the westward, the rear boat being still on a S.S.W. course, and soon disappeared to the south-westward. Scarcely had they disappeared when they opened fire, and the trawler was observed to be straddled by projectiles.

This trawler was the *James Pond*, the southern vessel of the line of illuminating vessels. She was about 1¼ mile due south of No. 7 buoy when she was attacked by the enemy,[1] who, steaming round her, soon set her on fire and disabled her wireless. They then disappeared to the westward, the crew of the blazing trawler making every endeavour to extinguish the flames and beach their vessel.[2] The wireless was destroyed, and all the fireworks were involved in the conflagration, so no alarm could be given. This happened at about 0055, when the northern attack was already in progress.

After disabling the *James Pond* the Germans proceeded to No. 16 buoy, and then slowly[3] to the north-west along the drifter line, sinking near No. 16 buoy the *Cloverbank*, near No. 15 buoy the *Cosmos*,[4] and near No. 14 buoy the *Jennie Murray*. They were all " flagships " of drifter divisions, and as no officers were saved[5] it is difficult to ascertain exactly what happened, but there is no doubt as to the order in which the ships were attacked. Besides the vessels sunk, the *Golden Gain* and *Golden Rule*, of the *Cosmos'* division, and the *Treasure* and *Violet May*[6] of the *Jennie Murray's* division, were damaged. The enemy then proceeded near No. 14 buoy, but missed the *Begonia's* division, which seems to have been to the south-westward, and opened fire at the *Chrysanthemum's* division south of No. 13 buoy.

The R.N.R. Lieutenant in the *Chrysanthemum*, having seen a green light fired to the southward, had endeavoured to withdraw his division to the N.W., but was headed off by the firing

[1] The Chief Skipper of the *James Pond* says that before opening fire the enemy burnt two green flares. This is probably true, as they were seen by other ships and taken for the alarm signal.

[2] The French T.B. approached about 0120 and offered to take the crew off, but the Chief Skipper refused to abandon his ship as she was not yet in a sinking condition. The French T.B. then stood off in the darkness, and at 0145 observed the wheelhouse on fire. The crew must have abandoned the ship about this time.

[3] The survivor of *Cloverbank* says they stopped; he heard their telegraphs ringing.

[4] *Cosmos* was badly damaged and set on fire, but did not actually sink till later.

[5] *Cloverbank* 1 survivor; *Cosmos* 3 survivors; *J. Murray* lost with all hands. It seems probable that one of these fired a green Very's light.

[6] This vessel though badly damaged and set on fire was brought into harbour by the two engine room ratings, who were the only unwounded men.

associated with the northern attack. He then waited on his station and came under fire. One vessel, the *Christina Craig*, of this division was sunk, but the circumstances are uncertain, as there were no survivors.

The enemy apparently reached the neighbourhood of No. 14 buoy about 0130, and then turned 16 points and steamed to the eastward. On their return they met and sank the *Silver Queen*. This drifter, having taken off the survivors of the *Cosmos*, which was still floating but on fire, set course for Dover and ran right into the enemy as they were coming back. Fire was also opened on the *Vera Creina*, of the *Cloverbank's* Division, and the *Ocean Roamer*, which had come up to investigate the blazing *Cosmos*; the time of this burst of firing was 0150. After passing close to the burning wreck of the *James Pond*, whose crew had just abandoned ship, the Germans disappeared presumably to the north-eastward.

All this happened without any general alarm being given. It seems that a green light was certainly fired during the attack, but whether by the enemy or by one of the drifters which were sunk is uncertain. and many vessels did not see it. The trawlers to the north-eastward continued to burn flares, and not being able to distinguish the enemy they made no report, although firing was seen and heard. More remarkable still, the *Syren*, patrolling between No. 7 and No. 10 buoys, observed nothing unusual, and considered all the firing was in the direction of Dover, though ships were sunk within a mile of her beat. There was a general impression in vessels which did not actually sight the enemy that the firing was due to air raids on shore.

9. Movements of M. 26.—As previously described, the monitor *M.*26 was stationed near the N.E. Varne buoy to act as a general support for the vessels on the minefield in the event of attack by surface craft. At about 0100 a short burst of firing was seen to the north-westward, and almost simultaneously a green light was sighted to the southward, followed by the flashes of gun-fire. The monitor was turned in the estimated direction of the firing, and steamed at full speed (about 9½ knots) to the southward in order to support the drifters. Unfortunately, there was apparently some misapprehension as to where the attack was being delivered, for instead of steaming right down the line of drifters the monitor passed through the line, and proceeded towards No. 30 buoy, stopping a mile north of it in order to interrogate a drifter at 0140. While steaming on this southerly course *M.*26 must have passed very close to the enemy, but at this time the firing had ceased, and she apparently saw nothing. The drifter near No. 30 buoy, one of the *Begonia's* division, reported that she had seen a trawler fire a green light but nothing further, and as all was quiet Commdr. Mellin decided to return to his patrol station. On the way north a burst of firing was seen to the eastward, which was evidently that accompanying

the destruction of the *Silver Queen*, but no notice was taken of it, and *M*.26 reached the N.E. Varne about 0210.

The various signals made from and to *M*.26 are described in paragraph 11 and Appendix B, but it may be noted here that the reports from the monitor did not tend to clear up the situation, and they omitted the important fact that a green light had been observed to the southward at 0100.

10. The Retreat of the Enemy.—It has been seen that the enemy vessels engaged in the northern attack appear to have steamed away past the N.E. Varne to the eastward at about 0115, the monitor being at that time away on her cruise to the southward. The three boats which had delivered the southern attack were last sighted about 0200 near the burning *James Pond*, in the neighbourhood of No. 7 buoy. Only one more brief glimpse of the enemy was obtained and this unfortunately did not result in their being brought to action.

The Eastern Barrage patrol was composed of the *Termagant* (Commdr. M. R. Bernard, R.N.), *Melpomene*, *Zubian* and *Amazon*, formed in single line ahead in that order. About 0100 firing had been heard, but it was so vague and indistinct that it was considered to be probably from the front in Flanders. At about 0150, however, when near No. 9 buoy, flashes and distinct reports were seen and heard on a bearing S. 65° W. Course was altered in this direction and the division proceeded past No. 9 buoy, but shortly afterwards, on intercepting the order to the Downs destroyers to return to their anchorage,[1] the *Termagant* altered course and resumed the normal patrol. The firing observed was evidently that in connection with the attack on the *Silver Queen*.

At 0221 the *Termagant*, then about one mile S.W. of No. 11A buoy, commenced to alter course to starboard from N. 60° E. to S. 60° W. Hardly had she started to turn when the *Amazon*, the last ship in the line, and somewhat astern of station, sighted three destroyers coming up astern, steering approximately east. They passed within two cables astern of the *Amazon*, steaming at moderate speed,[2] and when on the starboard quarter were challenged. No reply was received to this challenge, but the commanding officer of the *Amazon* formed the opinion from their general appearance, the fact that they were showing dim stern lights, and from their not opening fire, that they were some of our own destroyers on the way to Dunkirk. He therefore, in reporting the matter to the *Termagant*, only stated that " three of our destroyers had passed." None of the other vessels sighted them, although they cannot have passed far ahead of the *Termagant*.

The Senior Officer was apparently not satisfied that they were friendly, and asked the *Amazon* how it was known that they were ours, but owing to delay in passing the signal down the line it

[1] B.5. *See* para. 11. [2] 10 to 15 knots, as estimated by witnesses.

was not till 0250, when the division had been steering S. 60° W. for half an hour, that it was known in the leader that the challenge had not been answered.[1] It was then considered too late to proceed in chase, and the ordinary patrol was continued.

It is difficult to identify these enemy destroyers with certainty. If the vessels which delivered the northern attack had proceeded at about 12 knots they would have reached the neighbourhood of No. 11A buoy about 0220. Their course would have been east, and they would have covered the southern attack from interference by vessels proceeding from the Downs or Dover. The witnesses seem united in agreeing that the vessels sighted by the *Amazon* were steaming only at moderate speed, and for the destroyers who had certainly been still to the southward at 0150 to have reached No. 11 buoy by 0220 would have required a speed of at least 25 knots and more if they had passed close to the *James Pond*.

On the whole, it seems probable that the vessels sighted by the *Amazon* were the northern division, but against this it must be remembered that there were definite reports of four enemy destroyers off Folkestone, whereas no one in the *Amazon* saw more than three.[2]

11. Intelligence of the Raid at Dover.—From 0040 onwards, gun-fire was both seen and heard from the Port War Signal Station at Dover, first bearing W.S.W. and then S.E. Folkestone also reported firing to the S.E., but as a submarine had been sighted at 2345 it was not at first considered abnormal. As it continued and no reports were received from the minefield the Vice-Admiral at 0115 asked the monitor what the firing was, and not having received an answer at 0136 ordered the three destroyers in the Downs to rendezvous off the South Goodwin,[3] the Captain (D) preparing to proceed out from Dover in the *Moorsom* and join them. At 0135 *M*.26 reported that she was proceeding to investigate the firing south of the Varne.[4] This signal did not suggest that anything unusual had occurred, and above all, did not mention the essential fact that a green light—the signal for an attack by surface craft—had been seen. On receiving this message the Vice-Admiral ordered the Downs divisions to return to their anchorage.[5]

At 0208 *M*.26 and *P*.50 were asked if they had anything to report.[6] Evidence now began to accumulate that a raid had taken place. At 0220 Folkestone reported that the *Newbury* had

[1] B. 11, 12, 13, 14.

[2] It is worthy of remark, however, that while all the *Amazon's* witnesses agree that one of the enemy vessels was showing a dim light as from a badly closed scuttle in the forecastle, some say it was in the leading boat and some in the second.

[3] B. 2, 3. [4] B. 4. [5] B. 5. [6] B. 6.

made a distress signal with a hand lamp, and had then been lost sight of; four minutes later a signal was received from *M.26* reporting that a drifter had seen a green light fired, and that all was then quiet, and at 0250 the *Syren* reported encountering the drifter *Cosmos* on fire and abandoned near No. 10 buoy.[1] The signal from the *Termagant* reporting that the *Amazon* had sighted the enemy was not received by the Admiral till 0318, nearly an hour after the event, when there was no hope of intercepting the enemy.

No further incident occurred except the sighting of a submarine near Folkestone Gate by a drifter at about 0300, and the minefield patrol was chiefly occupied for the rest of the night in picking up survivors, towing damaged drifters into harbour, and searching for the *Newbury*. The latter ship was finally picked up off Dover and towed into harbour.

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[1] B. 7, 9, 10.

APPENDIX A.

VESSELS ON PATROL,
NIGHT OF FEBRUARY 14–15, 1918.

An asterisk thus (*) indicates that direct evidence exists as to the proceedings of the vessel in question.

In Downs :—	*Attentive.*	Light Cruiser.
	Murray.	T.B.D.
	Nugent.	,,
	Crusader.	,,
Dover :—	*Moorsom.*	,, (stand by).
West Barrage Patrol :—	*Swift.**	Flotilla leader.
	*Marksman.**	,,
East Barrage Patrol :—	*Termagant.**	T.B.D.
	*Melpomene.**	,,
	*Zubian.**	,,
	*Amazon.**	,,

Minefield Patrol.

Monitor.	*M.26.**	
Torpedo Craft.	*Syren.**	
	*P.50.**	
	*Racehorse.**	
Paddle Minesweepers.	*Newbury.**	Damaged.
	*Lingfield.**	
Flare Trawlers.	*Sabreur.**	
	*Viernoe.**	
	*Colleague.**	
	*James Pond.**	Sunk.
	*Laroone.**	
	St. Germain.	
	Erna.	
Motor Launches.	No. 12* and 272.*	

Drifters.
(Arranged in Divisions.)

*Feasible.**	*Shipmates.**	*Tessie.**
Reaper.	*Cyclamen.*	*Veracity* (sunk).*
City of Glasgow.	*I.F.S.*	*Courage.*
Silver Line.	*Rosemma.*	*Supporter.*
Acceptable.	*Condor II.*	*Radiant II.*
City of Edinburgh.	*W. Elliot* (sunk).*	*Lustre Gem.*
Achievable.	*Fearless.*	*Implacable.*
*Chrysanthemum II.**	*Begonia II.**	*Jennie Murray* (sunk).
Marys.	*Crescent II.*	*Treasure* (damaged).
Christina Craig (sunk).	*Azarael.*	*Vigilant.*
Our Friend.	*Scotch Girl.*	*Vintage.*
B.T.B.	*Arndilly Castle.*	*Violet May* (damaged).*
Test.	*Regain.*	*Hope II.*
Holmsgarth.	*Angelina.*	*Edith.*
Cosmos (sunk).*	*Cloverbank* (sunk).*	*Ocean Roamer.**
Golden Gain (damaged).*	*Fragrant.*	*Young John.*
Golden Rule (damaged).*	*John & Norah.*	*Bien Venu.*
Silver Queen (sunk).*	*Vera Creina* (damaged).*	*Lord Leitrim.*
Confier.		*Herring Seeker.*
Paragon II.		*Kessingland.*
Traffic Trawlers :—	*Goeland II.**	
(On route to Folkestone	*Simpson.**	
to Downs.)	*Pointer.**	
	*Seaward Ho.**	
Calais to Gris Nez :—	French T.B.s 344* and 350.	

APPENDIX B.

SIGNALS.

Note :—Times of receipt and despatch are those recorded at Dover W/T Station.

1. *From* Drifter *Shipmates*. Received 0034.
   To V.A. Dover.
   Submarine sighted on surface two miles W.S.W. of No. 12 buoy. (2345.)
2. *From* V.A. Dover. Sent 0128.
   To M.26.
   Report what firing is. (0115.)
3. *From* Captain (D). Sent 0136.
   To Murray.
   Downs Divn. rendezvous S. Goodwin. (0136.)
4. *From M*.26. Received 0143.
   To Captain (D).
   Am proceeding to investigate firing South of N.E. Varne. (0137.)
5. *From* V.A. Dover. Sent 0153.
   To Murray.
   Downs Divn. to return to Downs. (0147.)
6. *From* V.A. Dover. Sent 0208.
   To M.26 and *P*.50.
   Have you anything to report ? (0206.)
7. *From M*.26. Received 0224.
   To V.A. Dover.
   Drifter at No. 30 buoy reports trawler fired green Very light. All is now quiet to the southward. (0157.)
8. *From P*.50. Received 0250.
   To V.A. Dover.
   Gunfire heard E.N.E. at 0100. Ceased 0130. (0230.)
9. *From M*.26. Received 0252.
   To V.A. Dover.
   All is now quiet. I investigated to southward. Trawler fired green light, probably on account of anti-aircraft fire. (0220.)
10. *From Syren*. Received 0250.
    To Captain (D).
    Have come across drifter *Cosmos* on fire. Sank at 0215 in position ½′ S.W. of No. 10 buoy. Observed no boats on board and no sign of life. Searched the vicinity with no result. (0230.)
11. *From Termagant*. Received 0312.
    To Captain (D).
    Amazon reports three destroyers passed steering E. at 0224. Position 1′ S.W. of 11A (buoy). (0307.)

The following signals passed by visual between the *Amazon* and *Termagant* :—

12. *From Amazon*. Passed 0226 (approx.).
    To Termagant.
    Three of our destroyers have just passed steering East.
13. **From Termagant*. Time uncertain.
    To Amazon.
    How did you know they were ours, and what was time ?
14. *From Amazon*. Received 0250 (approx.).
    To Termagant.
    2.24 a.m. They passed two cables astern of me. They did not reply to challenge. (0249.)

* This signal was delayed in passing down the line as *Termagant* did not make it clear to *Zubian* that *Amazon* was addressed. All the times are somewhat uncertain.

PART III.

PROJECTED LANDINGS.

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PART III.

PROJECTED LANDINGS.

1. First Proposal for a Landing.—Admiral Bacon had not been in command at Dover for many months before the " vital importance " which he felt of wresting the Belgian coast from the Germans found expression in a memorandum which he forwarded[1] to the Admiralty and G.H.Q., France, for a surprise landing of troops inside Ostend, within the enemy's guns.

The Vice-Admiral pointed out[2] that possession by the Germans of the Belgian coast would be their one great counter against Great Britain at the Peace Conference. Its recapture would have consequences more far-reaching than the actual strategical effect on the western theatre of war ; and we could not afford to ignore the political effect it would have in Holland.

To come to more particular considerations, the enemy's mine-laying activities at this time by means of submarines were showing considerable increase ; and drift nets, the sole passive counter-measure which had been instituted at that date, were proving ineffective in checking their operations.[3] To cope with their menace a scheme to block Ostend had been prepared, and vessels were actually fitted for the work ; but when a landing at Ostend was proposed, the former scheme was abandoned as it entailed blocking a port which might be required later on for our own use.

The principal operations of the Dover Patrol during the latter part of the year 1915 were, therefore, confined to bombardments of the Belgian coast by the 12-in. monitors which were now arriving at Dover, though the bombardment of Ostend itself had been rendered " practically impossible " by the construction of the Tirpitz battery, whose 11-in. guns outranged the old 12-in. guns of our monitors by several miles.

The plan of the proposed landing[4] was based on the assumption that a fleet of six monitors and 100 trawlers could be placed in Ostend harbour without undue loss en route, either from mines or coast batteries. Before entering on any such operation it was necessary that the enemy on the left flank of the Allied Front should have been considerably shaken and forced to use up his

[1] Towards the end of 1915. This Memo. is referred to in C./100Q in Dover Pack 46/26, and there is also mention of a proposal for an attack on Ostend which the V.-A. put forward early in 1916; but copies of the Memos. are not forthcoming, and it has been necessary to rely upon Bacon's book for their tenour.

[2] Bacon, I. 210.

[3] *Ibid.*, 19.

[4] C./100/M in Dover Pack 46/26.

reserves, by a combined attack from Nieuport and Ypres, and that a British advance from the neighbourhood of Ypres should have reached a point almost within co-operating distance of a force landed at Ostend. The two forces would then effect a junction, and complete the overthrow of the enemy's right flank ; Ostend would then become the base of a new line of supply for the further prosecution of the advance.

The attitude of the Army was not unfavourable to such a project ; but when the scheme was considered in detail, the experience gained by Major-General Sir Aylmer Hunter-Weston in the Dardanelles landing enabled him to foresee a number of difficulties, which were considered too great to warrant the attempt.[1] The project was not abandoned, but was postponed until the military situation should enable it to be carried out with prospect of success. Stress was laid on the vulnerability of such a landing. It was pointed out, for instance, that the presence of guns covering the whole length of the harbour would render the enterprise as planned practically impossible, alike from a naval and a military point of view, and that such guns were probably mounted in the battery reported at Contredam.

2. A Fresh Project : The Great Landing.[2]—The postponement of the Ostend landing in no way altered the Vice-Admiral's views on the necessity of wresting the Belgian coast from the enemy ; and he devoted all the time he could to the subject.[3] Early in 1917 he wrote a memorandum pointing out the consequences which would ensue were Germany allowed to retain the coast after the war. " Holland will be totally cut off from Europe by land except by passage through German territory. Peaceful penetration and gradual economic absorption will so destroy national barriers that in any future war Holland will at once surrender to the Germans, and the whole coast from Kiel to Nieuport will be in their hands." It was only through lack of sea initiative and of the instinct of naval strategy that the Germans had failed to grasp the advantages given them by possession of the coast. Along a stretch of 25 miles they had mounted not less than 80 guns of 6-in. calibre and above,[4] and they still were actively employed in rendering the place impregnable. " They are turning the northern part of Belgium into a fortress," wrote Admiral Bacon. In their possession of strong bases close to our main arteries of traffic there existed dangerous possibilities not only for the future but for the present. If the Germans were to be turned out, it must be done without delay, not left to be a subject of discussion at the Peace Conference.

[1] Bacon, I. 220.

[2] *See* Plan IV.

[3] Papers C./100/M in Dover Pack 46/26 show that during the first seven months of 1916 the Vice-Admiral and his Flag-Captain were in constant communication on the subject with a military officer detailed by Sir Douglas Haig from his Staff.

[4] Bacon, I. 226.

So fraught with danger did the Vice-Admiral hold the position to be that he considered that the Dover Force should be doubled, if the enemy remained in possession of the Belgian coast in the winter of 1917–1918. He saw a prospect of Dunkirk being rendered untenable as a base of supply, and vast losses occurring among the Thames traffic. On the other hand, the recapture of the Belgian coast would enable the Dover Force to be largely reduced.

The project put forward by the Vice-Admiral was an important naval and military movement, not a mere raid. The Army needed no convincing as to the desirability of retaking the Belgian coast, and already, in June, 1916, Vice-Admiral Bacon had discussed the question of a surprise landing with Sir Douglas Haig,[1] and had received an assurance of his agreement to the plan, provided the military situation at the time were favourable.

At this date (June, 1916) the conditions for a landing at Ostend were no longer as favourable as at the end of 1915, when Admiral Bacon wrote his memorandum on the subject. During the months which had elapsed the enemy had doubled the number of his destroyers on the Belgian coast; he was reported to have introduced electric mines and torpedo tubes into the scheme of defence; and the coast batteries had increased in numbers and efficiency. A systematic night patrol was maintained by the enemy in the offing of Ostend. It seems to have been finally decided, however, that preparations for the seizure of Ostend should continue, but that the operation should not be attempted unless and until the British forces had reached a line Thourout–Roulers, and until the enemy batteries between Nieuport and Ostend had been knocked out or withdrawn.

3. Considerations affecting the Landing.—In the landing projected by Admiral Bacon at the end of 1915 Ostend had been fixed upon as the point of disembarkation; but in February, 1916, the Germans completed a battery of four 12-in.[2] guns in the neighbourhood of Zeebrugge, commanding the quays at Ostend at a range of 29,000 yds., and the guns of the Tirpitz battery had proved to be capable of firing on every bearing, thus rendering any landing at that port, other than a raid, out of the question. The landing, therefore, had to be effected on the open coast, either to the eastward or to the westward of Ostend.

The Belgian shore is sandy, interspersed with low hummocks; to the eastward of Ostend it is protected by sand dunes, and westward of the port a sea wall has been constructed. A landing east of Ostend, though feasible, suffered from the disadvantage that the fire of the coast batteries would render subsequent sea communication and support difficult, and for this reason a

[1] C./100/Q in Dover Pack 46/26.

[2] The Kaiser Wilhelm II battery, generally known as the Knocke Battery from the village close to which it was situated. These guns ranged accurately up to 34,000 yds. and had a 360° traverse. *See* Plan II.

point to the westward of Ostend was decided upon. It was hoped that the handicap of a 30-ft. sea-wall with a slope of 30°, topped by a parapet capable of being manned by infantry and machine guns, would be met by the element of surprise contained in landing at the last point where the enemy would expect a disembarkation to be attempted. Parties were to be thrown ashore simultaneously at three points a mile apart, namely, at Middelkerke, Westende, and at a point half-way between known as Second Maison Isolée. The whole landing, it was estimated, would take about twenty minutes.[1]

For a landing such as was projected, with a military force comprising three infantry brigades, with tanks, field guns, and 4·5-in. howitzers, disembarkation in boats and lighters was too lengthy and vulnerable a method. In the autumn of 1916 Vice-Admiral Bacon put forward a proposal for landing from long floating piers or pontoons, which were to be pushed into position by means of monitors[2]; but although the Admiralty approved of the project and much work was done on the details of the scheme, the strain on the shipbuilding yards at that date was already so severe that it was decided to defer construction of the pontoons, which were practically ships of 2,500 tons each, until the Army was ready to co-operate by an advance in Flanders.

4. The Work of Preparation.[3]—During the early part of 1917 preparations for the great landing were pushed forward. A pontoon was constructed and trials were carried out with it in March, 1917, in the Swin Channel. The pontoon was no light structure. Its dimensions were: length 500 ft., beam 30 ft., load draft aft 9 ft. (viz., the same as the forward draft of the monitors which would push it into position on the beach), decreasing to 18 in. forward. Fixed with chains between the bows of two monitors secured alongside one another, it projected like a huge proboscis. For landing purposes at certain states of the tide a wooden raft 100 ft. long was attached to the nose of each pontoon. After a few trials the Vice-Admiral was convinced that the scheme was practicable, and construction of two more pontoons was commenced with all despatch.

A survey of the beach, accurate to within 6 in. (made from aircraft photographs), a tide-curve (obtained by submerging a submarine off Nieuport, to register the depth of water above her hull continuously for 24 hours), and the determination of some method by which the slow moving monitors with the pontoons should be enabled to hit off the exact spot for landing, were some of the difficulties which were successfully solved. From April to June, 1917, trials were carried out to discover means of

[1] Bacon, I. 243.

[2] *Ibid.*, 230.

[3] As the original documents bearing on this subject are not forthcoming, Bacon, I. Cap. IX., has been taken as authority.

getting the tanks up the inclined sea wall and over the formidable coping; and this difficulty, too, was finally surmounted.

Meanwhile, every precaution was taken to ensure the secrecy of the proposed operations. The monitors were sent to the Swin and anchored out of sight of land, no communication being permitted with them and their tenders; and the pontoons and rafts were moored about a mile away, in order that they should not appear to have any connection with the ships. Practice manœuvres were carried out with the monitors and pontoons at night or in cloudy weather only, when enemy aircraft could not observe.

5. Description of the Operation.—The general scheme has already been outlined, viz., to effect landings of troops at daylight at three different points on the Belgian coast.

The proposed composition of the Landing Force was as follows[1]:—

Headquarters of 1st Division, 4th Army.
Left Column. 2nd Infantry Bde.
Centre ,, 3rd ,,
Right ,, 1st ,,
Total: 557 Officers, 13,193 other ranks.

Transport for each column:—
3 Tanks.
4 13-pdr. guns and limbers, with wagons and limbers.
2 4·5-in. howitzers and limbers, with wagons and limbers.
M.M.G. Battery (19 Side-cars, 8 Motor-cycles).
8 Stokes Carts.
150 Hand Carts.
2 Box Cars.
Cycles:—Right Column, about 3 motor, 183 pedal.
Centre ,, ,, 4 ,, 298 ,,
Left ,, ,, 3 ,, 388 ,,
Motor Car. One with centre column.
2 Ambulances.

6. Operation Orders for the Navy.[2]—The operations consisted of:—

(*a*) The Preliminary Operation.
(*b*) The Main Operation.

Since the date of the operations was not fixed, the calendar was expressed alphabetically in Operation Orders, for convenience of designation of dates, the day of the operation being "Z" day, the day before "Y" day, the day after "A" day, etc. Thus supposing the operation was ordered to be carried out on September 7, the days would be shown as follows:—

29, 30, 31, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, etc.
Q, R, S, T, U, V, W, X, Y, Z, A, B, C, etc.

The night of the 30th–31st being shown as:—
R—S Night, etc.

[1] Bacon, I. 243, 244. The composition of the Naval forces is given in para. 8.
[2] C./116/O, dated August 18, 1917, in Dover Pack 46/27.

7. The Preliminary Operation.—This comprised:—

(*a*) Assembly of the monitor units and pontoons.
(*b*) Loading the pontoons.
(*c*) Lashing up the monitors and preparing for the embarkation of troops.
(*d*) Assembling and loading store and cable lighters, picket boats, etc.
(*e*) Assembling the motor launches.
(*f*) Laying marks and buoys.
(*g*) Assembling the flotillas.

These operations would continue until 1600 on "Y" day, at which time the main operation was to commence.

The monitors and pontoons were to be moved to Dunkirk, where the troops would embark, as secretly as possible, leaving the Thames on "T—U" night, anchoring during "U" day in the Downs, and arriving at Dunkirk on "U—V" night. A constant aerial patrol to prevent enemy reconnaissance was to be maintained during daylight of "U" day over the Downs, while the monitors and pontoons were at anchor.

The loading of the pontoons was to take place at the Seaplane Base, Dunkirk, on "V—W" night; each pontoon carried one column.[1] During the time that the pontoons remained in Dunkirk harbour arrangements were made for screening them from observation by means of the monitors and small craft.

The loading of the store lighters at Dunkirk was to be completed by 1200 on "Y" day; responsibility for the loading of the stores devolved upon the Army. The cable lighters were to be loaded at Dover.

The motor launches (smoke boats) were organised in four flotillas, and were to concentrate at Dunkirk between 1900 and 1945 on "Y" day to avoid attracting attention (with the exception of the first flotilla, which was to arrive prior to "X" day).

Commodore Tyrwhitt with the Harwich Flotillas was to co-operate by protecting the operation from attack by enemy light craft, and the 6th Flotilla was placed under his orders, less the escort for the 12-in. monitors (1 Leader, 4 T.B.D.s and 6 "P" boats), and for the 15-in. monitors (1 Leader and 6 T.B.D.s)[2] which were to bombard the batteries east of Ostend.

8. The Main Operation.—This consisted in landing the force at the selected points on the coast. The three points selected[3] were known as:—

(1) The "Hospital" (Middelkerke).
(2) "Second Maison Isolée."
(3) "Casino" (Westende).

[1] *See* para. 5.
[2] Including four French boats.
[3] *See* Plan IV.

A modified plan was also prepared which merely entailed holding Westende and destroying the guns, without a further advance along the coast. The landings in this case were to be made at :—

(1) " Beau Terrain."[1]
(2) " Second Maison Isolée."
(3) The " Fan."

The work of the Navy was to land this force and to establish telephonic communication between it and the 4th Army. Subject to vessels being available, the Navy would also land reinforcements, ammunition, and stores, and evacuate the wounded subsequent to the main operations until the Army should have opened its shore line of communication.

The vessels available for these duties were allotted as follows :—

a. *Broke*, detached for duty with the Vice-Admiral and available as Flag.
b. *General Wolfe*, *General Craufurd*, one pontoon[2]—east unit —to land the left column. (*See* para. 5.)
c. *Lord Clive* (Flag), *Sir John Moore*, one pontoon—centre unit—to land the centre column.
d. *Prince Eugene*, *Prince Rupert*, one pontoon—west unit —to land the right column. Directly after landing, this unit was to return to Dunkirk, and commence loading with reinforcements and stores (on " Z " afternoon).
e. *Roberts*, spare ship in case of breakdown of a monitor.
f. *M.*25, to carry G.O.C. and 1st Divn. Hdqrs.
g. *M.*23, 24, 26, and 27, to support the landing.
h. *Tamura* (trawler), to act as W/T link to *M.*25.
j. *Newbury* (paddle M.S.), to embark 1st Divn. Hdqrs. not accommodated in *M.*25 or *Tamura*.
k. Lighters *X.*209 and *X.*210, to lay cable communications between centre column landing-place and La Panne, and from W/T trawler to La Panne.
l. 36 X-lighters, to land stores, etc., subsequent to the main operation. Of these nine (in three divisions) were to be loaded by the Army prior to the operation, with a total of three days' supplies.
m. Six picket boats, with cutters and gigs as necessary, to run communication cables between the three units, etc., attend on *M.*25 and the Vice-Admiral, etc.
n. *Argus* (Trinity House vessel), to lay extra buoys as necessary.
o. Minesweepers, to sweep the area as laid down in their detailed orders.[3]

[1] The exact position of this landing-place is not defined. The " Fan " was a peculiar earthwork at the extreme western end of the sea-wall (Westende).
[2] The rafts would not be used unless necessary, depending upon the day on which the operation took place.
[3] These orders were lettered C./116/OH, but they are not extant.

p. Commodore (T)'s force,[1] with destroyers, flotilla leaders, and cruisers of 6th flotilla attached, was to provide protection from sea attack on the landing forces, and to provide buoy-laying vessels (" P " boats).
q. 80 motor launches (divided into four flotillas and eight divisions) were to provide a smoke screen to cover the landing and approach of the forces to the beach. The screen was to extend approximately one mile beyond the flank 12-in. monitors, and, since the monitors were one mile apart, the front was to be some four miles. Various cases were considered in Operation Orders for the wind from different quarters, and though the order when to commence smoke would not be issued until the day of the operation and would depend upon the prevailing wind at the time, the intention was that the screen should be started when the eight-point turn towards the shore was made ; and the motor boats were to anchor approximately in line with the bows of the pontoons. Phosphorous smoke was the means employed.
r. *Erebus*, *Terror* and *Marshal Soult* were to carry out firings as ordered to divert attention from the main operation. They were divided into two groups : *Marshal Soult* to bombard Zeebrugge Mole, Blankenberghe and Jacobsen ; *Erebus* and *Terror* to engage the Raversyde batteries.

The operation, as planned, was to have taken place as follows :—

At 2200 on " Y " day the monitors, each pair with its loaded pontoon attached, were to slip and proceed with their escorts in the following order :—

1st Divn. of motor launches.
*M.*23 (*P.*50 and *P.*23 on her port beam, 2 cables).
2nd Divn. of motor launches.
General Wolfe unit.
3rd Divn. of motor launches.
*M.*24.
4th Divn. of motor launches.
Lord Clive unit.
5th Divn. of motor launches.
*M.*26.
6th Divn. of motor launches.
Prince Eugene unit (*P.*21 and *P.*49 on her starboard beam, 2 cables ; *P.*11 and *P.*24 astern of them).
7th Divn. of motor launches.
*M.*27.
8th Divn. of motor launches.
*M.*25, *Tamura*, *X.*210 and *Newbury*.

[1] Comm. (T) was to issue his own orders.

The fleet would steer a course parallel to the coast and some 3½ miles distant from it. When opposite to the respective landing-places of the columns, each pair of monitors would turn eight points to starboard on flashing buoys dropped by the "P" boats detailed for the purpose, and covered by the smoke screen of the motor boats would steer straight for the shore on a line of flashing buoys dropped by the "P" boats ahead.

The hour of approach would be timed to coincide with the commencement of the bombardment of the batteries east of Ostend by the 15-in. monitors; and at half a mile from the shore the "M" monitors were to open fire on the Plage and houses inshore of it. The 12-in. monitors would open fire as the pontoons grounded, for five minutes, after which both the "M" monitors and the 12-in. monitors would cease fire. As the pontoons grounded the first companies of infantry would leap ashore and swarm the wall, the tanks would be sent forward, and the action would begin.

Directly the troops were clear of the pontoons the landing of guns and transport was to commence, and telephonic communication was to be established with headquarters ashore and between the three units. With the falling tide, the monitors would back off and make for West Deep. The 1st Division of the 4th Army would now be committed to its task.

9. The Chances of the Operation.—On the Naval side everything was now in readiness; it only remained for the advance of the Army to reach a point which would render it possible to carry out the operation with fair chance of success.

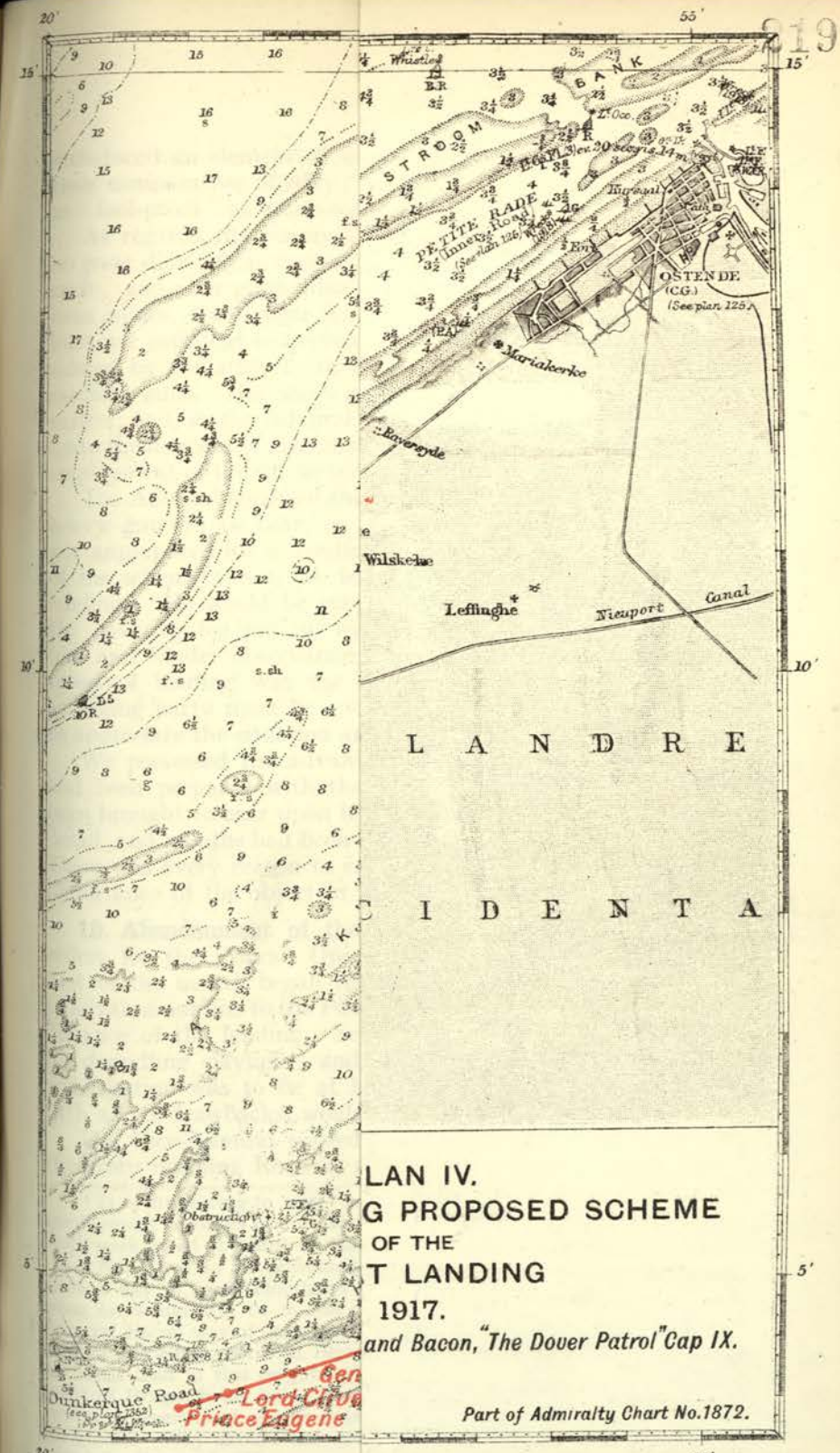
Admiral Bacon set out the chances of success in a Memorandum[1] written whilst waiting for the Army to advance.

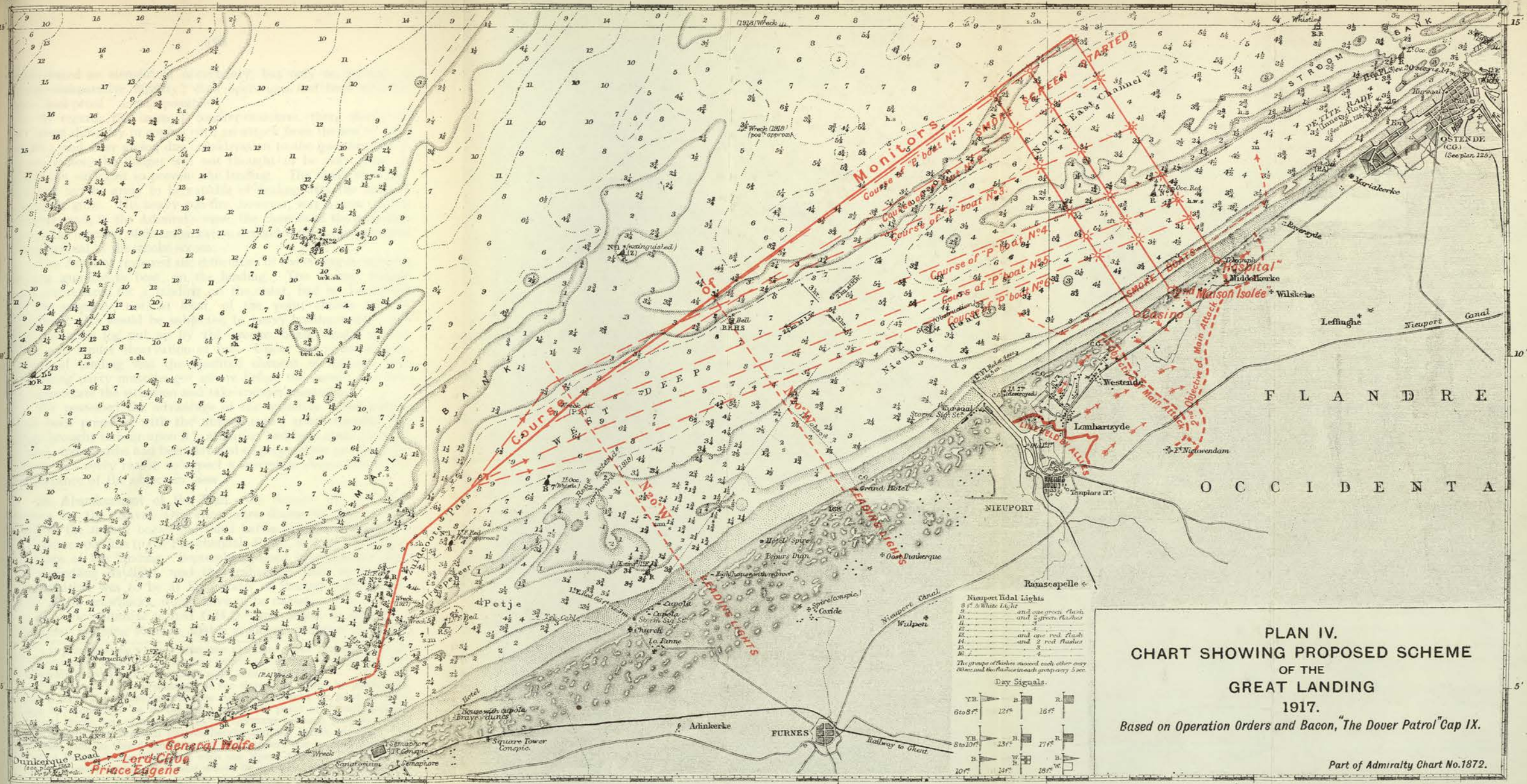
The scheme itself seems to have been practicable in so far at least that it did not depend upon any false movement of the enemy. The object was of vital importance. At the worst, total failure involved the loss of six 12-in. monitors and one division of troops, a loss which, though it would be regrettable, was not of vital importance.

The 12-in. monitors, hopelessly outranged, were of little value at that date for bombarding the Belgian coast, and the time was past when they might have been required to protect the left flank of the army against an enemy landing. "In no imaginable operation against German territory can these vessels be of any use," wrote Admiral Bacon. As regards the tactical difficulties, the operation of bringing the monitors in their right formation up to the landing-place was simple.[2] The smoke boats

[1] This Memorandum is not forthcoming, but it is reprinted in Bacon, I. 249 *et seq.*

[2] The Admiral makes no mention of the difficulties introduced by the pontoons; but the monitors had practised manœuvring with pontoons attached, and they were, of course, veterans in service on the Belgian coast.





PLAN IV.
CHART SHOWING PROPOSED SCHEME OF THE GREAT LANDING 1917.

Based on Operation Orders and Bacon, "The Dover Patrol" Cap IX.

Part of Admiralty Chart No. 1872.

Hydrographic Department, Admiralty, 1921.

introduced an element of uncertainty, but only on account of their comparative novelty; their operations had been rendered as " fool-proof " as was possible.

As regards the enemy's counter-measures, there should be no great difficulty in coping with an attack from the sea by light craft; and after giving due consideration to the question of loss from mines, the danger was not thought to be very great, at least not sufficient to prevent the landing. The tanks were considered by the army to be capable of dealing with the enemy's machine guns. His heavy gun-fire, however, was a more serious matter, and, in the Admiral's view, the chances of the operation up to the moment of disembarkation depended upon the successful employment of the smoke screen.

The Admiral reviewed the difficulties of the enemy in bringing heavy gun-fire to bear, on the landing. The enemy, though not unprepared for a landing on the coast, had no knowledge of the scheme[1]; not, at least, of the point chosen for the landing.[2] He would be subjected to heavy bombardment; and the covering fog put up by the smoke boats would confuse him and hinder observation of fire. Under the circumstances, speed of landing was the essential element of success. The attacking party must be got ashore before the enemy had time to appreciate the situation and take counter-measures.

We possessed the advantage of the initiative. The scheme had been prepared with the utmost care; much thought had been brought to bear upon it; attention had been given to every detail, and months had been devoted to preparation and practice. There was every reason to expect a success in proportion to the importance of the object in view.

10. Abandonment of the Plan.—On August 18, 1917, the orders for the (Naval) Operation were drawn up, and on the 31st of the month began the third battle of Ypres, which was to advance our line to the Passchendale Ridge, within co-operating distance of the landing. September passed into October, with its dwindling daylight, and the realisation that, as the disembarkation was to be at high water, a landing before dawn, with all its drawbacks, would have to be risked.

The Vice-Admiral visited G.H.Q.[3] and urged, in default of the army reaching Roulers, that a modified operation should be

[1] It is interesting to note that the Germans were prepared for the employment of tanks in any landing which we might carry out, for tank stops were fitted at points on the coast. *See* C.B. 1524.

[2] Nor, it is to be presumed, of the date. At most, he could only learn a day or two beforehand (the Admiral thought an hour or two), when he would still be in the dark as to the point of disembarkation. Admiral Bacon was of opinion that the Germans believed that we should land, if anywhere, between Blankenberghe and the Dutch frontier. " If we could land in this neighbourhood and support the landing up to the point of Bruges being held, then with our Ypres Army at Thourout, the retreat of every soul on the coast would be cut off, and a great disaster inevitable. Why should the enemy not forecast such an action on our part? " Bacon, I. 253.

[3] Bacon, I. 259.

carried out, to seize the coast from Middelkerke to Nieuport, destroy the batteries,[1] and give the Navy an opportunity of landing heavy guns at the Palace Hotel to reach Zeebrugge Lock and Bruges Lock. But this was a very different plan, and the Field-Marshal was not prepared to co-operate in it.

Up to the middle of October everything was kept in readiness for the project, but on the 15th of that month the 1st Division was ordered to be withdrawn from the coast, and the " Great Landing " was abandoned for that year, and, as events proved, for good and all.

[1] There were about 100 guns installed along this stretch. *See* C.B. 1524.

PART IV.

THE DOVER BARRAGE.

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APPENDIX.

Correspondence and Telegrams between Admiralty and Vice-Admiral, Dover, relative to passage of Straits of Dover by German submarines, July–December, 1917

PART IV.

THE DOVER BARRAGE.

1. Indicator (Drifter) Net Barrage.—At the outbreak of the war few foresaw, perhaps few could have foreseen, that the all-important task of the Dover Command at the end of the war would be that of barring the Straits against enemy submarines. They had entered very tentatively at first. It was not till September 27, 1914, that *U.*18 ventured so far and attacked the *Attentive*. On November 11, *U.*12 sank the gunboat *Niger* in the Downs, and by the end of the year the importance of closing the Straits was beginning to be recognised.

The history of the barrage may be conveniently divided into three phases :—

Phase I.—The Indicator (drifter) net barrage in 1915. (Rear-Admiral Hood's Barrage.)

Phase II.—Moored mine net barrage with mines in support, begun in September, 1916. (Vice-Admiral Bacon's Barrage.)

Phase III.—Mine barrage, begun November 21, 1917. (Rear-Admiral Roger Keyes' Barrage.)

Prior to the war a committee had sat at the Admiralty to consider the submarine problem, but the only contrivance evolved by it seems to have been the modified sweep. The use of nets with explosives had been proposed in various quarters ; experiments had been made at Lowestoft with fishing nets, and a Submarine Attack Committee had been set up at the Admiralty in December, 1915, the outcome of whose activities was the " Indicator Net." [1] These were nets of steel wire of high tensile strength, in lengths of about 300 ft. by 30 ft. deep, floated by kapok floats, and intended to be shot by drifters, like ordinary nets, with the object of fouling a submarine. It is unnecessary to enter into great technical detail. The nets were attached with clips, and it was intended that the enemy submarine should carry away a section, which would not only hinder his passage and perhaps jam his hydroplanes, but would betray his presence by the rise of an indicator buoy to the surface.

Large numbers of nets were being manufactured in January, 1915, and on February 20 instructions were sent to the Auxiliary Patrol explaining their use.[2] Admiral Hood took up the idea with enthusiasm. Drifters gradually arrived, and Captain Bowring was appointed in charge. On January 15 trials were carried out

[1] " Merchant Navy," Archibald Hurd, 368. *Actæon* nets are mentioned in M.0311/15 of January 7, 1915. They were intended for the channels of the Thames estuary.

[2] M.0311/15. Instructions for use, M.01249/15 of February 20, 1915.

under the Rear-Admiral's superintendence, and the flotilla was gradually organised. It was found that drifters could shoot about 300 yds. of net in half an hour. Difficulties were encountered with clips, buoys, sinkers, moorings and floats, but steady progress was made and by the middle of February thirty drifters were riding to their nets across the Straits.

Bases were now established at Cromarty, Peterhead, Firth of Forth, Yarmouth, Harwich, the Nore, Portsmouth, Portland, Poole, Falmouth, Devonport and Larne ; but Dover remained the principal exponent of their use. Bad weather took a heavy toll of the equipment,[1] but the nets were more successful than any other measure adopted previous to 1918, for they led to the abandonment of the use of the Straits for over four months.

On March 4, *U.*8, going westward, evidently fouled a net and was sighted at 12.30 p.m. A chase followed, with occasional sightings ; she was attacked by the *Viking* and *Ghurka*, and at 5 p.m. the latter fired an explosive sweep over her, forcing her to come to the surface and surrender with her whole crew. By March 6, 11 miles of net had been shot, and on March 20 *U.*37 left her base to go down Channel and never returned.[2]

Finally, early in April, *U.*32 got caught in a net and only extricated herself with difficulty after some hours. She went home northabout, bringing a very vivid account of the occurrence, and on the strength of her report instructions were issued to the High Seas Fleet Flotilla (*i.e.*, the flotilla in the Bight) that the northabout route was as a general principle preferable.[3] They ceased to use the Straits, and the Flanders flotilla, with the exception of a short interlude in June and a trip in August, followed suit and eschewed the Straits for four months. The success of the drifter nets does not seem to have been appreciated at the time, possibly due to the change in command which was now taking place.[4]

Simultaneously with the use of the drifter indicator nets a heavy boom was being constructed from Folkestone to Gris Nez under Captain Donald Munro, R.N., on the design of one built by him at Cromarty. It consisted of wooden floats (9 ft. by 5 ft.) weighing some four tons, moored by first-class mooring buoys, with two 5-in. jackstays, floating a 2-in. wire net 100 ft. deep. The boom was in sections 200 yds. long, but the line chosen for it necessitated the use of a gate for traffic at Folkestone and the careful control of traffic in the area. Difficulties were experienced in exercising the necessary control, ships were constantly crashing

[1] Ninety nets (*i.e.*, 4½ miles) were swept away in a three-days' gale.

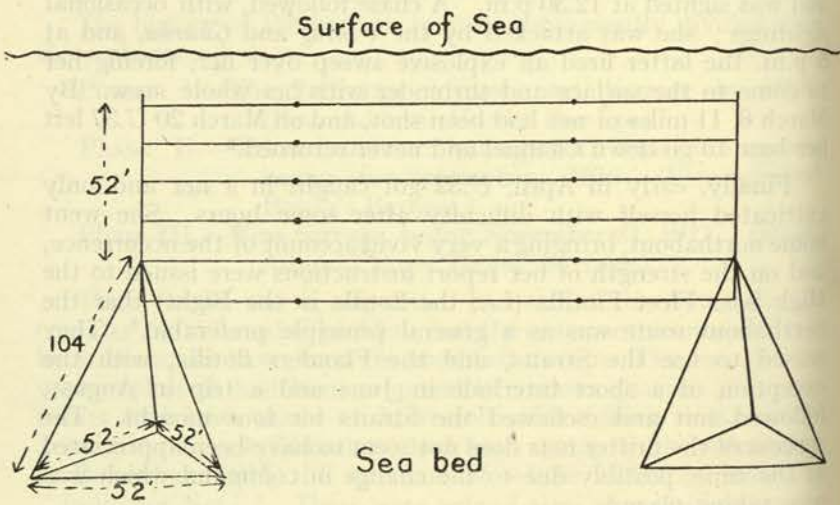
[2] Nothing is known of her destruction, but her loss would add to the moral effect.

[3] " Grundsätzlich die Wahl des Nordwegs vorgeschrieben wurde ": Gayer, *Die deutschen U-Boote*, ii. 21.

[4] Rear-Admiral Reginald Bacon succeeded Rear-Admiral Hon. Horace Hood on April 13, 1915. There is no mention of the success attained by the indicator drifter nets in Admiral Bacon's " Dover Patrol."

into the boom, and although more than half of it had been constructed, Rear-Admiral Bacon thought it best to abandon it soon after his appointment to the command.[1]

2. Admiral Bacon's Pyramidal Standards.—Admiral Bacon was also in favour of a "permanent barrier" across the Straits, but brought with him a design of his own. This consisted of 800 "pyramidal standards" of railway iron with rails slung horizontally between them.[2] The base of the standards was to be in the form of an equilateral triangle of three 52-ft. rails; the sides of the pyramid were to consist of two 52-ft. rails fastened together, ending in a single upright rail whose height was to vary with the depth of water. These structures were to be approximately 100 ft. high, with six lines of horizontal rails 15 ft. apart strung between them.



The standards were not to be moored, and it was thought that submarines would be disinclined "to charge a six-barred gate of railway iron." Though it never materialised the design is interesting, and it deserves to be remembered on account of its entirely novel nature.[3]

3. The Belgian Coast Barrage, 1916.—On April 24, 1916, a barrage of moored mine nets was laid by Rear-Admiral Bacon off the Belgian Coast,[4] which may be said to constitute the first

[1] *See* "Dover Patrol," ii. 391. The sections of the boom were removed to Fidra, where they stood the strain of heavy weather and tides throughout the war. South Goodwins to Ruytingen would have been a better line for it, out of the way of traffic, which all passed through the Downs.

[2] A description will be found in M.02862/15 of April 13, 1915.

[3] Two of the pyramidal standards fitted with platforms were used for observation posts for bombardments. *See* "Dover Patrol," i. 79, Plate VI (photograph).

[4] "Dover Patrol," ii. 427, and diagram i. 115. The mines were electrical contact mines, the batteries being contained in empty Russian mine cases.

attempt to cope with submarines on a large scale. It consisted of some 18 miles of moored nets fitted with net mines, laid parallel to the Belgian Coast, and about 12 miles from it between Nieuport and the Schelde. It was supported by lines of deep mines and was completed by May 7. On the day it was laid *U.B.*3 was destroyed by a lance bomb thrown from the drifter *Gleaner of the Sea*. Another submarine (*U.B.*10) ran into it the same day and took eight hours to get clear, with mines exploding all round her. There can be little doubt that it increased the difficulties of the Flanders submarines, but the mines were apparently ineffective, and no submarine seems to have been actually destroyed by it. The cessation of submarine activity between April and September, 1916, was, however, attributed to it by Rear-Admiral Bacon,[1] and its apparent success led directly to the construction of a similar barrier across the Straits.

As a matter of fact, the cessation of submarine activity was due to an entirely different cause. Scheer, who had been appointed to the command of the High Sea Fleet in January, was a strong advocate of unrestricted warfare. He would have nothing to do with a campaign against commerce on a prize law basis of visit and search, and in the event of such a policy being ordered he formed the intention of using the High Sea Flotillas in fleet operations. The very day that Admiral Bacon was laying his barrage off the Belgian coast (April 24), Admiral Scheer, on his way out to the Lowestoft raid, received orders, in consequence of the *Sussex* incident,[2] to carry out the submarine campaign against commerce in accordance with prize law. He immediately recalled all his boats and brought the campaign against commerce, so far as the High Sea Flotillas (constituting at least half of the boats in northern waters) were concerned, to an abrupt termination.[3]

For the next five months the Bight boats took no further part in the campaign against commerce and were employed in fleet operations.[4] The Flanders flotillas followed suit[5] for four months, though not so strictly, for their boats made occasional cruises on the East coast; in the beginning of September they recommenced the campaign, as their Commandant (Korvetten-Kapitän Bartenbach) could not bear to see his boats lying idle month after month. The net result was that from May to the end of August, 1916, there was, with the exception of an occasional cruise on the East coast and a single cruise in the Channel, an almost entire cessation of submarine activity in British Home waters. This had nothing whatever to do with the Belgian coast barrage, but, being attributed to it at Dover, led to a very

[1] "Dover Patrol," i. 164. "All mining ceased instantly in Dover Straits."

[2] The Cross-Channel Packet Steamer *Sussex* was attacked without warning in the Channel on March 24, 1916.

[3] Scheer, 130; Gayer, iii. 55, 63.

[4] Jutland and August 19, 1916.

[5] "Schloss sich der Auffassung des Flottenchefs an," Gayer.

exaggerated idea of its merits, which in its turn gave rise to a belief on the part of the Dover Command in the efficiency of a similar barrage across the Channel.[1]

4. The Dover Moored Mine Net Barrage.—In view of the apparent success of the Belgian coast barrage, it was now determined to construct a similar one across the Straits, and the line chosen was from the South Goodwins to Ruytingen, which would keep it clear of all mercantile traffic.[2] This consisted of indicator mine nets, suspended from a 2-in. head wire and moored by buoys every 500 yds. The buoys were numbered in sections of one mile from 1 to 26, and each section was divided into four subsections designated A, B, C, D.[3] The depth of the net varied from 30 to 84 ft.,[4] and the nets were bottled at the top with glass floats and held down at the foot with two 2-cwt. or 3-cwt. anchors and 500 yds. of $\frac{5}{8}$-in. to $\frac{7}{8}$-in. chain.

Each net carried two E.C. net mines. The moorings of the buoys were very heavily constructed to prevent dragging on the slippery chalk floor, ranging from 3 to 8 tons, with $1\frac{5}{8}$-in. to $2\frac{1}{4}$-in. chain, and being heaviest in the section 1A—6A, where the water was deepest and the tide ran strongest. The barrier was commenced on September 2, 1916, and the Ruytingen was reached on October 21, 1916, and 20A buoy in December, 1916.

The mine nets were supported by lines of deep mines laid half a mile to westward of the nets, but unfortunately the mines dragged into the nets and became a source of danger to vessels engaged in the maintenance of the barrage. The whole barrage had to be taken up (between May 6 and June 28, 1917), and in weighing the anchors the *Alert* (a Trinity House tender) struck a mine; she could ill be spared, and was not easily replaced.

The barrage was lighted by light buoys at every three miles and was patrolled by a comparatively small number of vessels.[5]

[1] The decreased intensity of minelaying in the Channel was also attributed to it, but regular minelaying in the Channel only commenced in September, 1916. No mines were laid by Flanders boats in the Channel between January and September, 1916. The mine fields laid in the Dover area (*i.e.*, Folkestone, Calais, Boulogne, and Belgian Coast) in 1916 were: January—3, February—6, March—9, April—1, May—4, June—0, July—3, August—0, September—4, October—5, November—4, and December—3. *See* "German Statement of Mines laid by Submarines of Flanders Command," O.U. 6020 (B.).

[2] For details of Dover mine net barrage, *see* "Dover Patrol," ii. 394; also Dover Barrage Committee's Report, November 29, 1917, Appendix A; and M. 05502/17, letter Captain Fred. G. Bird of May 3, 1917.

[3] Thus the buoys began from the South Goodwins: 0A, 0B, 0C, 0D, 1A, 1B, 1C, 1D, 2A, 2B and so on to 26D.

[4] In May, 1917, 0A—1B 60 ft., 1B—3A 84 ft., 3A—6A 84 ft., 6A—14B 60 ft., 14B—15A 30 ft., 15A—20A 60 ft., 20A—21A 30 ft., 21B—22B 60 ft., 22B—Snouw Bank 60 ft.

[5] The system of patrol is described in Part II, "Dover Raids."

These light buoys were very useful to enemy submarines in negotiating the barrage and were constantly referred to in their reports; but the ineffectiveness of the barrage must be attributed to the lack of an efficient deep minefield to catch the submarines if they dived, and of an intensive system of patrol to deal with them if they tried to pass on the surface. The actual maintenance of the barrage involved an immense amount of work, and Captain Bird, who was in charge of it, stated that during the winter months he would be very sorry to say that even 25 per cent. of it was ever efficient.[1]

There can be no doubt that the barrage never fulfilled its object of stopping the passage of submarines, and Admiral Bacon finally shared this opinion.[2]

A German report on the passage of the barrage was salved in 1917 giving particulars of 190 passages made between December 23, 1916, and June 6, 1917. These were chiefly made at night, and during these six months there are only eight reports of touching a net and eight reports of being forced to dive to avoid patrols. It did no damage to the enemy on the occasions of his raids, though it seems to have possessed an uncanny capacity for damaging our own ships, which shows that its boat mines were by no means innocuous.[3]

It was Admiral Bacon's intention to double the number of buoys and use a deeper net, in addition to laying a second line of buoys about 70 yds. from the existing line carrying a floating net to entangle the propellers of vessels passing through. There is no reason to believe that this would have increased the efficiency of the barrage,[4] and the only real solution lay in a deep minefield and an intensive patrol. This was finally appreciated. In July, 1917,[5] the Vice-Admiral proposed that a line of deep mines should be laid off Gris Nez, 50 to the mile in four depths, with two, or even three, lines to each depth. The Admiralty replied in October stating that 4,500 mines had been allotted to this minefield to be laid about the middle of November.[6]

Here the matter rested for a time and here a short digression is permissible.

The Belgian coast had always acted as a magnet to the Dover Command, and there can be little doubt that during 1917 the

[1] M. 05502/17.

[2] "Dover Patrol," ii. 399. "This barrage never stopped submarines passing."

[3] *Goodwood* damaged by a net mine half a mile N.E. of 20A, Jan. 1, 1917; *Meteor* about April, 1917; *Redgauntlet* May 21, 1917; *Faulknor* and *Nugent* September 25, 1917.

[4] Barrage Committee's Report, para. 4.

[5] M. 08481/17, July 7, 1917. "Dover Patrol," ii. 401, states that proposals were made in February, 1917. These were probably verbal, for the above appears to be the first letter on the subject.

[6] M. 08481 of October 8, 1917. 2,900 would be required for two sets and 4,350 for three sets. The mines were to be H4 with Mark XI Sinkers, and some H2* with Mark XII Sinkers, to be laid by the *Amphitrite*, *Princess Margaret* and *Paris* from Portsmouth.